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PULMONARY TUBERCULOSIS

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ARRESTED
PULMONARY TUBERCULOSIS

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PREFACE.

THE contents of the following pages formed the substance of a Paper read at the opening of a discussion on Arrested Pulmonary Tuberculosis, in the Section of Pathology, at the Meeting of the British Medical Association, held at Bournemouth, in August 1891. It is now reprinted, with many additions and alterations, from the *British Medical Journal*, chiefly in order to place before the reader, in a complete form, the evidence upon which the conclusions are based.

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ARRESTED PULMONARY TUBERCULOSIS.

RECENT events have rendered it more than ever desirable that our views of the pathology of "phthisis" should be in accord with the results of scientific research, and that our knowledge of the natural history of pulmonary tuberculosis should be accurate; for a false pathology cannot but act as a bar to progress in therapeutics, and ignorance of the course of a disease may lead us to ascribe to remedies results which have been brought about by the unaided resources of nature.

The discovery of the tubercle bacillus, followed by the proof of its pathogenic properties, has, in the opinion of most pathologists, set at rest the vexed question of the nature of tubercle, and has at the same time gone far to determine their views as to the pathology of phthisis; in truth, we appear to be approaching the end of the controversy which has been carried on for so long between the supporters of the "specific," as opposed to the "inflammatory," origin of phthisis, and, apparently, little will be left to those who follow us but to marvel that it should have taken so long to decide a question which, with their wider knowledge, will seem to present so little difficulty.

It is true that the process which leads to the formation of a tubercle is often accompanied by a simple inflammatory exudation; this is nowhere better seen than in tubercular infiltration of a serous membrane, such as the pleura. Fine miliary granulations stud the serous membrane, whilst the pleural sac contains serous fluid, and thick membranous

exudation adheres to each of its layers. Transfer these morbid products to the spongy lungs, and it must be obvious that, just as the lymph upon the pleura often hides the tubercles beneath, so the inflammatory changes therein will sometimes obliterate the specific products.

The view now generally accepted by pathologists is that expressed in the following passage : *

"It has always been recognised that tuberculosis plays a considerable part in the pathology of phthisis pulmonalis, but it is only of late years that a more complete demonstration has been furnished of the fact that, virtually, all are really cases of tuberculosis of the lung. There may be a few of actinomycosis, and possibly a few of syphilis, which produce lesions somewhat similar in character, but they are so few that phthisis pulmonalis may now be regarded as synonymous with local tubercniosis of the lung."

Those who may still decline to accept this view, will, at any rate, admit that there are a very large number of cases of destructive disease of the lungs due to the presence of tubercle; these cases I am accustomed to designate by the term "Pulmonary Tuberculosis," or "Tubercle of the Lungs."

For cases, if such there be, of destructive disease of the lungs which can neither be recognised as tuberculous, nor referred to any other well-known group, it is possible that "Phthisis Pulmonalis" may be the most appropriate name; on this point no opinion is expressed, as during the past twelve months, since I ceased to use that name for the tubercular cases, I have not met with any such.

In asking the profession to discard such a term as "phthisis," sanctioned by long usage, one feels bound to indicate in what direction advantage may be looked for. In the first place, then, we shall bring our nomenclature of all tuberculous affections into line, and, as we now speak of a tubercular (or tuberculous) meningitis, pleurisy or peritonitis, so we shall designate the local manifestation of

* Coats' "Manual of Pathology," p. 657.

tuberculosis within the lungs by its proper name of "Pulmonary Tuberculosis."

Another advantage will be the necessary disappearance of the term "The stages of phthisis." Few expressions have done more than this to confuse the minds of students and to prevent the unfortunate sufferers from the disease from acquiring such an understanding of the malady as their knowledge will allow. It is hardly necessary to insist that the so-called "stages of phthisis" are stages in a pathological process, which may be arrested in any one of them, and that they have no necessary connection with the general advance of the disease. But it is difficult to make a patient who has been told that he has a cavity, which he knows to represent the third stage of the disease, believe that he is better off than many who are still in the first or second, whereas it is well known that arrest in the stage of cavity may be complete and its duration indefinitely prolonged.

This change of name is the more to be desired in that, if I read aright, "The Nomenclature of Diseases drawn up by the Joint Committee appointed by the Royal College of Physicians, 1885," the term Phthisis, standing alone and unqualified, is no longer recognised. On reference to p. 83, Diseases of the Lung, one finds: "356. Acute Pneumonic Phthisis. 357. Chronic Pneumonic Phthisis." "364. Millstone-maker's Phthisis," but not "Phthisis." Tubercle is to be returned according to the variety, and the part of the body affected. It is true that in the Index, which it is stated on p. xxvi. "is in some senses the real nomenclature," Phthisis appears alone and in type which indicates that it may be so employed, but "see Tubercle of Lung" is affixed, indicating as I read it, that there is but one such disease, and it is directed that the cases are to be registered under the head of Tubercle.

The term "Fibroid Phthisis," although still in use by many physicians, is no longer officially recognised, "Cirrhosis of the Lung" having been substituted for it. As originally employed it included both tubercular and non-tubercular lesions; for the latter, the terms, "Chronic Pneumonia"

or "Chronic Interstitial Pneumonia," appear preferable to "Cirrhosis of the Lung," as they do no violence to etymology; there is nothing "yellow" about an indurated lung.

The essentially tubercular nature of the destructive pulmonary lesions induced by employment in various trades, such as that of a knife-grinder, mason, miner, weaver or potter, has been demonstrated too often to need more than a passing reference.

Much has been written on the subject of Syphilitic Phthisis, but I confess that the existence of a destructive disease of the lung due to syphilis has never appeared to me as proven, and a careful examination of many lungs has not, in my case, been repaid by an ability to recognise with certainty a syphilitic lesion. I can recall only a single case to which the term syphilitic phthisis was even remotely applicable, one in which a gumma of the left bronchus, whilst in process of softening, opened into a large branch of the pulmonary artery and caused death by hæmorrhage.

On these grounds I am content to rest the case for the suggested change of name, and, although well aware that it is not easy for a long word to displace a short one in nomenclature, and that for two it is more than twice as difficult, I am not without hope that this may happen, and that a name, which clearly indicates the pathological nature and clinical relationships of the affection, may be ultimately preferred to one which has been differently interpreted with each changing phase of pathological opinion.

THE VARIETIES OF PULMONARY TUBERCULOSIS.

There are certain forms of pulmonary tuberculosis, variations from the common type, recognisable both clinically and pathologically, for which distinctive names appear to be necessary.

1. **Pulmonary Tuberculosis.**—The term itself is sufficient for all ordinary cases of "chronic phthisis," in which, although the various changes to which tubercular

lesions are liable, may be, and often are, represented, no single one is present in such a marked degree as to impress a special character upon the case.

2. **Miliary Tuberculosis (of the Lungs)** may occur as part of a general tubercular infiltration, having its starting-point in the lungs or elsewhere, or it may be limited to those organs. One of the chief dangers which besets the subjects of arrested tuberculosis is a liability to a sudden dissemination of the virus, followed by a rapid formation of miliary tubercle. This is also a not uncommon mode of termination of chronic cases of lung tuberculosis.
3. **Caseous Tuberculosis (of the Lungs).**—The tendency of tubercular products to undergo caseation is admitted by all, and the rapidity of its occurrence appears to be a measure of the resisting power of the individual. This is at its minimum in those very acute cases hitherto termed “Florid Phthisis,” or “Galloping Consumption,” which are characterised by rapid softening of the caseous areas. Cases in which a whole lobe, or the greater part of it, is affected, may be termed “Lobar Caseous Tuberculosis”; those in which caseation and breaking down occur rapidly in numerous areas, “Disseminated Caseous Tuberculosis.” The former condition is very likely to be mistaken for croupous pneumonia, until the unusual degree of emaciation or the absence of a crisis suggests an examination of the sputa, when the discovery of tubercle bacilli reveals its true nature.
4. **Fibroid Tuberculosis (of the Lungs).**—This group includes all cases in which there is a special tendency on the part of the tubercles to undergo fibroid transformation. Single granulations or groups of tubercles, or extensive areas, are found black or slaty-grey in colour, and of a dense fibroid consist-

ence. The larger masses do not break down, but in their centre fibrous tissue develops, and the special elements atrophy, so that it may be that separate tubercles can be distinguished with the naked eye at the margins only. Around the contracting fibrous lesions the tissue is often emphysematous, a compensatory change: a few caseous or calcareous nodules may be present, but softening and cavity formation are often conspicuously absent. In the indurated areas the pulmonary tissue shows atrophic and fibrous changes. Occasionally this form of lesion appears to result from the tubercular infiltration of lung tissue already emphysematous, but more often the latter change is, as above stated, compensatory.

Fibroid Tuberculosis occurs with especial frequency in men, of good muscular development, but with flat chests. Such cases are marked by a generally apyrexial course, by recurrent hæmorrhages, by their prolonged duration, and by the frequency with which the process undergoes arrest.

I do not include under this heading the very chronic cases characterised by slow destruction of lung tissue, contraction of cavities, and extreme pleural thickening; such are ordinary cases of so-called "chronic phthisis," for which the term pulmonary tuberculosis appears to be adequate. One not uncommonly sees in the post-mortem room, lungs presenting in the upper lobe the above appearances, whilst in the lower the mode of formation of such lesions is clearly shown by the presence of tubercular infiltration, of softening, and of cavities in process of formation.

Such an appearance is shown in Fig. 1. The pleura covering the upper lobe is seen to be much thickened, consequent on the presence of contracting cavities, which are smooth walled and in communication with dilated bronchi. The interlobar septum

is also much thickened. The intervening septa surround the obliterated vessels and represent the remains of atrophied, collapsed and indurated lung tissue. In the lower lobe the advancing margin



FIG. 1.

of the disease clearly indicates its tubercular nature, and presents appearances such as are commonly met with.

CHARACTERS OF TUBERCULAR LESIONS.

It may be useful to enumerate briefly the various appearances which tubercular lesions may present.

1. If the life of the tubercle is short, it may remain a grey miliary granulation and may be so found on autopsy.
2. It may undergo caseation, either separately or after having coalesced with neighbouring granulations.
3. A caseous mass may soften and be discharged, a vomica being the result.
4. Such a mass may undergo cretification.
5. A caseous mass may become surrounded by a fibrous capsule, and may so remain during the life of the individual, who may die of some non-tubercular disease.

6. After a varying period local changes may lead to the breaking through of the capsule and to the softening and discharge of the contained matter, if still caseous, or to its discharge as a calcareous mass.
7. In the process of softening a caseous mass may open up a communication with a blood or lymphatic vessel, and absorption of the virus may be followed by acute general or pulmonary tuberculosis. Or in the course of its discharge the virus may be inhaled into other portions of the lungs, and may there set up a local tuberculosis.
8. A miliary tubercle may undergo fibroid transformation, followed, as a rule, by pigmentation. This change may affect a few granulations, or by its extent may form a marked feature in the case, in which event the term Fibroid Tuberculosis becomes applicable.

The consecutive lesions are described below :—

OBSOLETE LESIONS.

Since the time of Laennec it has been recognised that tubercular disease of the lungs may undergo arrest, although few who have not had extended experience in the post-mortem room can have any conception how frequently obsolete lesions are found at the apices of the lungs, either in association with or apart from disease elsewhere in those organs. In common with most pathologists, I regard such changes in the majority of cases as evidence of tubercular disease having become arrested; but before proceeding to consider whether this view is correct, it may be well to briefly enumerate the lesions so met with :

1. Pigmented tubercles which have undergone fibrosis.
2. Fibroid induration, puckering and scarring of the apex, with or without undoubted tubercles.
3. Areas of caseation surrounded by a fibrous capsule, or by deeply pigmented tissue, the latter sometimes presenting obvious granulations.
4. Cretified masses similarly situated.

5. Cavities of the size of a hazel-nut with smooth walls, filled with pigmented material of caseous consistence and not in communication with a bronchus. Larger thick-walled cavities are as a rule clearly of tubercular origin.

With the above lesions certain others are generally associated and are consecutive to them. Such are :

6. Scarring and puckering of the pleura.
7. Adhesion of the pleura, with areas of extreme thickening, the result of the separation of the visceral and parietal layers by the contraction of an intrapulmonary lesion.

This change will be met with in various stages—

(a) Fine filamentous adhesions with many vessels passing between the two layers of the serous membrane.

(b) Contraction commencing, separation of the surfaces, and exudation into the interstices of the adhesions of serous fluid, which can be squeezed out after section.

(c) The exudation undergoing fibrillation and no longer fluid.

(d) The exudation organised and of a varying degree of consistence according to its age, ultimately becoming almost cartilaginous in density and forming a wedge with its apex toward the lung.

Cases in which the apex of the lung or the whole upper lobe is covered by a dense and thick fibrous investment are as a rule obviously tubercular and no question can arise as to their nature.

8. Thickening of the interlobar septa from contraction of neighbouring disease within the lung.
9. Dilatation of the bronchi. This is in nearly all cases a compensatory change.
10. Surface emphysema, bullæ of various sizes being situated around the contracted lesions.

11. Compensatory enlargement of other parts of the same lung or of the opposite lung.
12. Obliteration of the intercostal spaces.
13. Displacement of organs, &c.
14. Caseation of bronchial glands.

Subjects in whom lesions such as the above are found may have died of a disease which has not the most remote connection with tubercle, or they may have succumbed to acute tuberculosis or to a non-pulmonary tubercular disease, or the disease in the lungs may have again become active and death have been due to the gradual destruction of those organs.

FREQUENCY OF OBSOLETE PULMONARY LESIONS.

I have examined the post-mortem reports of the Middlesex Hospital from 1879-86, during which period I held the appointment of Pathological Registrar, and have extracted from them records of many such cases.

These results appear on the accompanying table, which shows the number of autopsies on which reports were made, the number of cases in which obsolete tubercle was present in the lung, the sex of the patient, the lung affected, and the cause of death.

TABLE I.

Middlesex Hospital, 1879-86.

Number of necropsies, 1943; obsolete tubercle in lungs, 177=9 per cent.

| | | | |
|--|-----|---|-----|
| Males | 110 | Right lung | 35 |
| Females | 67 | Left lung | 36 |
| | — | Both lungs | 106 |
| | 177 | | — |
| | | | 177 |
| Cause of Death : | | | |
| Cancer | | | 73 |
| Sarcoma | | | 5 |
| Tuberculous affections, excluding pulmonary tuberculosis | | } Not included See Series II. & III. | |
| Emphysema and bronchitis | | | 8 |
| Pneumonia | | | 7 |
| Pulmonary œdema | | | 1 |
| Specific fevers | | | 3 |
| Caries and necrosis of bone | | | 2 |

Cause of Death—*continued.*

| | |
|--|-------|
| Wounds, injuries, poisons | 14 |
| Diseases of the brain and membranes | 13 |
| " " spinal cord and membranes | 2 |
| " " heart and vessels | 14 |
| " " liver | 4 |
| " " alimentary canal | 6 |
| " " kidneys, bladder, and genital organs | 16 |
| Various diseases | 9 |
| | <hr/> |
| | 177 |

In the "Wiener Klinik" for 1879,* will be found a paper by Heitler, "On the Curability of Phthisis, and the Combination of Tuberculosis with other Diseases," in which an account is given of the results obtained from the records of the Institute of Pathological Anatomy of Vienna from 1869-79; these are similarly tabulated (Table II.), and the results are seen to correspond in several important particulars.

TABLE II.

Institute of Pathological Anatomy, Vienna, 1869-79 (Heitler.)

Number of necropsies, 16,562; obsolete tubercle in lungs, 789=4 per cent.

| | | | |
|-------------------|-------|----------------------|-------|
| Males | 509 | Right lung | 69 |
| Females | 280 | Left lung | 65 |
| | <hr/> | Both lungs | 655 |
| | 789 | | <hr/> |
| | | | 789 |

Cause of death:

| | |
|--|-------|
| Cancer | 107 |
| Sarcoma | 3 |
| Tuberculous affections, excluding pulmonary tuberculosis | 106 |
| Emphysema and brouchitis | 60 |
| Pneumonia | 46 |
| Pleurisy | 15 |
| Bronchiectasis | 7 |
| Pulmonary œdema | 1 |
| Peritonitis | 31 |
| Specific fevers | 25 |
| Puerperal fevers | 6 |
| Amyloid disease | 10 |
| Caries and necrosis of bone | 23 |
| Wounds, injuries, and poisons | 23 |
| Diseases of the brain and membranes | 56 |
| " " spinal cord and membranes | 7 |
| " " heart and vessels | 55 |
| " " liver | 52 |
| " " alimentary canal | 15 |
| " " kidney, bladder, and generative organs | 93 |
| Various diseases (not more than four of any one affection) | 58 |
| | <hr/> |
| | 789 |

* P. 269.

The percentage of cases of obsolete tubercle in the Middlesex Hospital table is almost twice as large as in Heitler's (9 to 4.7 per cent.), and it would have been considerably increased had the cases dying from acute tuberculosis and non-pulmonary tubercular affections been included.

Dr. Sidney Martin has also recorded * his experience on this point, obtained in the post-mortem room of the same hospital, and the results are in striking conformity with those given above. In tabular form they appear as follows :

TABLE III.

Middlesex Hospital, 1890-91 (Sidney Martin).

Number of necropsies (consecutive), 445 ; obsolete tubercle in lungs,
42 = 9.4 per cent.

| | |
|------------|-------|
| Right lung | 12 |
| Left lung | 9 |
| Both lungs | 21 |
| | <hr/> |
| | 42 |

Cause of death :

| | |
|-----------------------------------|-------|
| Cancer and sarcoma | 12 |
| Lung diseases | 10 |
| Disease of circulatory system | 8 |
| Other diseases (single instances) | 12 |
| | <hr/> |
| | 42 |

Dr. Coats, as the result of the careful scrutiny of post-mortem examinations, has come to the conclusion that about 23 per cent. of the persons who die of diseases unconnected with tuberculosis have been at a former period of life affected with some form of internal tuberculosis.

Dr. Harris,† from an experience at the Manchester Infirmary extending over a year, states that, taking the deaths from all causes, the proportion of cases of involuted tuberculosis of the lungs is 38 per cent., but, as he includes certain cases of death from "phthisis," this figure cannot be used for comparison with those already given. The proportion of "phthisical" cases presenting appearances indicating a period of arrest is very large, and a comparison is only possible when the inquiry is restricted to cases in which death occurred from a non-tubercular disease.

* *Brit. Med. Jour.*, Oct. 31, 1891.

† *Ibid.* p. 933.

Professor Brouardel states that he has found evidence of cured tubercle, in the form of the lesions already enumerated, in the apex of the lung in 60 per cent. of those over thirty years of age whom he has examined after death from violence. Statistics of obsolete lesions have been given by many other writers, but the evidence already adduced is adequate to support the statement that disease at the apices of the lungs frequently undergoes arrest. In order to show more clearly the nature of the lesions found in the cases coming under my own observation, I have made abstracts of the post-mortem notes and have arranged the cases in various series.

At the head of each case is a statement of the general pathological conditions present, then follows an account of those appearances in the lungs which I regard as evidence of previous tuberculosis. To some cases I have added a few remarks. The descriptions have necessarily been abbreviated, but no other alteration has been made in the wording and the cases appear in the order of their occurrence.*

* Some of the examinations were made by my colleagues, Drs. Coupland, Finlay, Pringle, Pasteur, the late Dr. Lyell, Mr. W. Roger Williams, Mr. J. B. Sutton, and Mr. C. S. Hudson ; to such cases I have appended their initials.

Series 1.

CASES IN WHICH DEATH WAS DUE TO A NON-TUBERCULAR DISEASE.

CASE 1.—*Adherent Pericardium. Cardiac Dilatation. Dropsy. Tubercular Peritonitis.*

Esther D——, aged sixty-two.

R. Lung.—Adherent all over. At apex, a tough, smooth, black mass of tissue, of semi-cartilaginous consistence, and a small thick-walled cavity subjacent. The whole lung pervaded by pigmented fibrous nodules, with here and there small caseous foci and cheesy plugs in the bronchioles.

L. Lung.—The seat of similar fibrous changes, especially in its central parts.

The mesentery and visceral peritoneum studded with tough, greyish granules, the size of millet seed to split peas, mostly surrounded by areas of slaty-coloured pigmentation.—(S. C.)

Remarks.—An interesting case of arrested pulmonary and peritoneal tuberculosis. The pericardial adhesions, which were the apparent cause of the cardiac failure, were possibly also the result of an old tubercular pericarditis, but it is not so stated in the report.

CASE 2.—*Epithelioma of Cheek destroying Lower Jaw.*

Henry S——, aged forty-six.

L. Lung.—At apex, a circular cavity about the size of a chestnut: the walls irregular, some old tubercular deposits round.

R. Lung.—Solid throughout, from condensation of lung tissue; scattered through it were a number of abscess cavities of varying size.—(R. W. L.)

CASE 3.—*Bronchitis, Emphysema, Dilatation and Hypertrophy of Heart.*

Eliza J——, aged thirty-one.

R. Lung.—Extremely adherent, surface puckered. Numerous bullæ on surface between tough cicatricial depressions. Upper lobe tough and congested. A dense mass of black pigmented fibrous tissue seated in its lower part. Lower lobe very tough and indurated, smooth on section, greyish, marbled, and for the most part consolidated.

L. Lung.—Extremely emphysematous in its upper part; below, much puckered, and the seat of pigmented toughened tissue investing bronchi.

Kidneys.—In centre of left, an opaque yellowish-white mass, the size of a large pea.—(S. C.)

CASE 4.—*Acute Bronchitis.*

Thomas C——, aged forty-two.—Firm adhesions at the back of left lung. Apex puckered; dense pigmented tissue around a cavity the size of a nut. Both lungs emphysematous.—(S. C.)

Remarks.—A good example of the association so often observed, of emphysema with obsolete tubercle.

CASE 5.—*Fistula in Ano (blind external). Lobular Pneumonia.*

Benjamin H——, aged forty-two.

Lungs.—Both lower lobes consolidated throughout from lobular pneumonia; of a brick-red colour. Left upper lobe contained patches of concrete tubercle.—(R. W. L.)

Remarks.—The patient was under treatment in the surgical wards for an extensive peri-rectal abscess, and died from acute pneumonia.

CASE 6.—*Emphysema. Bronchitis.*

James C——, aged thirty-four.

R. Lung.—Very slight fibrous change in the upper lobe, and extensive emphysema.

L. Lung.—At apex the pleura is depressed, puckered, and thickened over an area the size of a florin; whole lung very emphysematous.—(S. C.)

Remarks.—A somewhat doubtful case. An incision through cicatrices almost invariably shows subjacent lesions.

CASE 7.—*Cardiac Thrombosis. Cerebral Embolism. Red Softening of portions of Left Cerebral Hemisphere. Pulmonary Embolism.*

William D——, aged forty-seven.

L. Lung.—In the apex a calcified mass the size of a Barcelona nut, and in the lower part of this lobe a mass of consolidation resembling that in right lung (*i.e.* changes following embolism).—(S. C.)

CASE 8. —*Cirrhosis of Liver. Chronic Peritonitis.*

William W——, aged fifty-four.

R. Lung.—Old adhesions at apex; visceral pleura presented a patch of cicatricial thickening the size of a shilling; beneath it a mass of tough pigmented fibrous tissue, surrounding numerous opaque yellow points.

L. Lung.—A similar patch of pleural thickening and pulmonary fibrosis in apex.

CASE 9.—*Glioma of Orbit (recurring from Eyeball). Caseous Bronchial Glands. Tuberculosis of Lungs and Spleen.*

Arthur F——, aged eight.

Almost entire right half of face covered by a fungating mass springing from right orbit.

Both lungs were pale, and scattered over the surface were a large number of shot-like granules, which on section presented the characteristic appearances of miliary tubercles. Many such were scattered through the substance of both lungs. At the back of the thorax was a cluster of glands about the size of a plover's egg, which had undergone caseous degeneration.

Spleen contained a large number of tuberculous caseous nodules.—(R. W. L.)

Remarks.—An interesting case, showing tuberculosis arrested or rendered quiescent by the presence of a malignant growth.

CASE 10.—*Aneurysm of Descending Thoracic Aorta.*

Henry B——, aged thirty-three.

The aneurysm was of the size of an infant's head at birth.

L. Lung.—General pleural adhesions. A puckered cicatricial patch, the size of half a crown, in the visceral pleura in front of the lower lobe.

R. Lung.—Universally adherent, somewhat emphysematous; contained a few small caseous nodules at apex.—(S. C.)

CASE 11.—*Hæmorrhage into Left Cerebral Hemisphere (Thalamus and Centrum Ovale) and into Ventricles.*

Henry M——, aged sixty-one.

R. Lung.—Emphysematous. Apex non-crepitant; consolidated patch the size of a small orange; fibrous tissue increased; miliary tubercles throughout.

L. Lung.—Upper lobe very emphysematous. Caseous nodules about 2 inches from apex; surrounded by consolidated tissue in which is deposited abundance of miliary tubercle.—(For S. C.)

CASE 12.—“*Serous Apoplexy.*” *Cyst of Velum Interpositum. Fatty Infiltration and Degeneration of Heart.*

William B——, aged forty-three.

L. Lung.—In the lower part of the upper lobe a small semi-cretified mass; pleura overlying, puckered, thick, and white.—(For S. C.)

CASE 13.—*Carcinoma Linguae. Catarrhal Pneumonia. Asthenia.*

John A. S——, aged forty.

R. Lung.—Interlobar pleurisy. Scar on pleura at apex. An inch below apex an irregular cavity, about size of a small orange, with thin walls. Fibrous tissue in excess; a much larger cavity, in centre of upper lobe. Middle lobe consolidated, from catarrhal pneumonia. Lobules at base filled with catarrhal products.

L. Lung.—Recent tuberculous nodules scattered through lower third of upper lobe; irregular cavity at apex.

CASE 14.—*Morbus Cordis (Aortic and Mitral). Fibro-calcareous Degeneration of Inter-ventricular Septum. General Atheroma. (?) Syphilis. Syncope.*

Henry G——, aged seventy.

R. Lung.—A very large irregular cavity in the upper lobe, and some smaller ones in the lower. All lobes thickly infiltrated with miliary tubercle, which had in places undergone caseation.

L. Lung.—Both lobes completely infiltrated with recent miliary tubercles of small size.

Remarks.—The advanced age of the patient is noteworthy; also the association of valvular disease, aortic and mitral, with pulmonary tuberculosis. The case also illustrates one of the dangers incidental to quiescent tubercle, viz., an outbreak of acute miliary tuberculosis. (See Series 3.)

CASE 15.—*Cancer of Uterus, Bladder, Vagina, and Rectum.*

Emma M——, aged forty-nine.

R. Lung.—Emphysematous. A few scattered tubercular nodules in lower lobe.

L. Lung.—Emphysematous. Crepitant throughout, except for a few nodules of tubercular consolidation scattered through both lobes; consolidated patches at apex.

CASE 16.—*Addison's Disease, without Cutaneous Bronzing. Advanced Caseo-cretaceous Degeneration of Supra-renal Capsules.*

Edwin N——, aged fifty-five.

R. Lung.—Deeply pigmented and emphysematous, containing a few nodular masses of tough black fibrous tissue and central spots of caseation in its substance.

L. Lung.—Apex occupied by a dense mass of pigmented fibrous tissue, and a few fibrous and caseous nodules scattered through lung.—(S. C.)

CASE 17.—*Fracture of Dorsal Spine. Paralysis of Intestine. Granular Kidneys.*

Charles B——, aged sixty-two.

Thorax.—Adhesions of both lungs at apices, especially of left.

L. Lung.—A few cheesy and cretaceous nodules in apex, with increased fibrous tissue growth.

L. Lung.—Old fibrous and cretaceous changes in apex.—(R. W. L.)

CASE 18.—*Senile Gangrene. Atheroma. Chronic Nephritis.*

James B——, aged sixty-five.

R. Lung.—Emphysematous. Old smooth-walled cavity at apex filled with greenish-yellow caseous material.

L. Lung.—Small irregular cavity in outer edge of lower lobe; pleura overlying, scarred and puckered.

CASE 19.—*Fracture of Femur. Uræmia. Chronic Interstitial Nephritis.*

Samuel R——, aged fifty-one.

L. Lung.—Firm pleural adhesions. Extreme emphysema. Three puckered patches at the apex; on section through these, dry, cretified and caseous nodules, about the size of a pea, were found beneath.

CASE 20.—*Compound Comminuted Fracture of Left Tibia and Fibula. Fracture of Eight Ribs.*

Thomas D——, aged fifty-one.

L. Lung.—Numerous cretaceous nodules and three small cavities at the apex. Recent miliary granulations in upper and lower lobes.

CASE 21.—*Epithelioma of Sigmoid Flexure of Colon.*

George R——, aged fifty.

R. Lung.—The pleura was puckered at the apex, and beneath there was a caseous mass about the size of a hazel-nut.

L. Lung.—Emphysema along outer margin of apex, where there were a few old cretaceous nodules.

CASE 22.—*Epithelioma of the Mouth, Tongue, and Larynx. Secondary Deposits in the Glands and Tissues of the Neck.*

Edward M——, aged fifty-four.

Firm pleural adhesions at both apices.

L. Lung.—Apex puckered. Numerous old cretaceous and caseous nodules and miliary granulations, deeply pigmented and of long standing.

R. Lung.—Apex in similar condition.

CASE 23.—*Emphysema. Bronchitis.*

Marian C——, aged twenty-eight.

R. Lung.—Very adherent over upper lobe, especially at apex, where there is a cavity, the size of a small orange, with pigmented and irregular walls. Cavity communicates with bronchus. Rest of upper lobe collapsed, tough, and pigmented. Close to cavity is a very firm semi-caseous encapsuled mass, the size of a half-walnut. Lung markedly emphysematous and engorged.

L. Lung.—No adhesions. At apex a solid nodule the size of a hazel-nut, firm, opaque, semi-caseous, with bronchiole in centre. Numerous pigmented fibrous nodules, much emphysema and engorgement, and areas of collapse along margins of rest of lung.—(S. C.)

Remarks.—This case also illustrates the condition of emphysema (often with "bronchial asthma") following arrested tuberculosis.

CASE 24.—*Cancer of the Vulva. Secondary Infiltration of the Uterus and Glands.*

Mary Ann S——, aged fifty-three.

R. Lung.—A small cavity at the apex surrounded by caseous and miliary tubercle and dense fibrous tissue. Peri-bronchial tubercle scattered through lower lobe.

L. Lung.—Thick-walled cavity at apex; miliary granulations in both lobes.

CASE 25.—*Ulceration, Perforation and Stricture of Rectum (probably Syphilitic). Fatty Liver.*

M. A. A——, aged thirty-three.

L. Lung.—A small cavity at the apex, not in communication with a bronchus.

CASE 26.—*Epithelioma of the Uterus. Secondary Deposits in Lymphatic Glands. Amyloid Disease of Liver, Spleen, and Kidneys.*

Harriet J——, aged forty.

R. Lung.—Irregular cavity at apex, containing pus and debris; pigmented and recent tubercles around; latter also in middle and lower lobes.

L. Lung.—Cavity at apex, along posterior border recent miliary tubercle. Pleura thickened and fibrous.

CASE 27.—*Epithelioma of Soft Palate and Tongue. Pulmonary Gangrene. Embolism of Pulmonary Artery.*

William S——, aged fifty-two.

R. Lung.—Contained four large gangrenous cavities in lower lobe.

L. Lung.—Congested and œdematous: no gangrene. Recent miliary tubercle in upper half of the lower lobe; some coalesced tubercles formed caseous areas.

CASE 28.—*Cancer of Rectum. Intestinal Obstruction. Enterotomy.*

Emma S——, aged sixty-nine.

R. Lung.—Cavity at apex, containing caseous debris, surrounded by old granulations. Tubercle in middle and lower lobe.

L. Lung.—Emphysematous.

CASE 29.—*Cancer of Stomach and Pancreas. Infiltration of Glands in Portal Fissure. Ascites.*

Robert B——, aged fifty-eight.

R. Lung.—Puckered and adherent at apex, where the tissue was indurated and pigmented around a caseous nodule. Both lungs, pale and emphysematous.—(S. C.)

CASE 30.—*Cancer of Duodenum.*

William N——, aged fifty-eight.

Both lungs universally adherent and much disorganised. Areas of caseation, in some places softened into small vomicae, are scattered through the emphysematous tissue.—(S. C.)

CASE 31.—*Granular Nephritis. Arterial Degeneration. Aneurysm of Right Common Femoral Artery.*

George C——, aged sixty.

L. Lung.—The upper lobe contained a calcareous nodule the size of a nut.

CASE 32.—*Cancer of the Uterus, Vagina, Bladder, and Rectum.*

Louisa D——, aged thirty-five.

Cavity at apex, size of hazel-nut, filled with dried caseous material. Lung tissue around condensed and fibrous. Bronchi dilated and filled with caseous pus; a few old pigmented tubercles in neighbourhood.

L. Lung.—Emphysematous.

CASE 33.—*Cancer of Left Breast, invading the Pleura.*

Emma B——, aged forty.

L. Lung.—At apex, posteriorly, there was a consolidated patch, about the size of a walnut, surrounding a caseous nodule.

CASE 34.—*Multilocular Ovarian Cyst. Thrombosis of both Pulmonary Arteries. Sacculation of Left Kidney.*

Mary W——, aged forty-six.

R. Lung.—Bronchial glands caseous and calcareous. A few cretaceous nodules at apex, also a small empty cavity the size of a pea.

L. Lung.—The upper lobe contained masses of cretaceous nodules.

CASE 35.—*Cancer of Uterus and Bladder. Secondary Deposits in Peritoneum and Glands.*

Harriet G——, aged fifty-one.

L. Lung.—A small hard calcareous nodule at the apex.

CASE 36.—*Cancer of the Large and Small Intestine, Peritoneum and Liver.*

Isabella E——, aged seventy-five.

L. Lung.—Dilated bronchus at apex, surrounded by a nodule of consolidated lung. Overlying pleura thickened and scarred, but not adherent.

CASE 37.—*Cancer of Uterus.*

Eliza W——, aged sixty-four.

Lungs.—The apices contracted and puckered; on section, a greyish wedge-shaped patch of induration; no recent changes. Emphysematous bullæ along anterior margins. Some pigmented granulations in both lower lobes.

CASE 38.—*Chronic Nephritis. Pulmonary Œdema. Hypostatic Pneumonia. Pachymeningitis Hemorrhagica.*

Caleb R——, aged forty-six.

L. Lung.—A healed phthisical cavity at the apex surrounded by dense cicatricial tissue. Lower lobe solid from hypostatic pneumonia.

CASE 39.—*Epithelioma Lingue.*

Dennis L——, aged fifty-one.

L. Lung.—At apex an old phthisical cavity, completely encapsuled; walls black in colour, and contents cretaceous; equal in size to a chestnut, but really consisting of several separate cavities. Bronchial glands enlarged and calcareous. Firm pleural adhesions on both sides.

CASE 40.—(?) *Sclerosis of Brain and Cord. Cirrhosis and Fatty Degeneration of Liver. Hypostatic Pneumonia.*

Oswald S——, aged fifty.

L. Lung.—Old caseous patch at apex; many emphysematous vesicles; overlying pleura puckered. On section, several firmly encapsuled caseous nodules were found.

CASE 41.—*Acute Pulmonary Œdema. Verdict of Coroner's Jury: "Death from Congestion of the Lungs."*

Léon P——, aged thirty-two.

Trachea completely filled with frothy fluid, and the same condition existed in the bronchi. At each apex a few scattered calcareous deposits surrounded by indurated fibrous tissue. Some of the deposits had not undergone calcification; pleura puckered.

CASE 42.—*Chronic Nephritis.*

Charles P——, aged seventy-two.

L. Lung.—Apex condensed, and contained a small calcareous nodule. Upper lobe emphysematous.

R. Lung.—Upper lobe, bronchi dilated, tissue fleshy; at extreme apex an emphysematous sac as large as a chestnut. Bronchiectasis in lower lobe.

CASE 43.—*Cerebral Hæmorrhage.*

James M——, aged sixty-two.

R. Lung.—Apex puckered; emphysematous bullæ around a number of caseous nodules.

L. Lung.—Apex puckered; contains several cretaceous nodules.

CASE 44.—*Dislocation of Seventh Cervical Vertebra. Paraplegia.*

Edward G——, aged thirty-eight.

R. Lung.—At apex an old caseous nodule, and a dilated bronchus leading to it. The pleura over it was puckered.

CASE 45.—*Cancer of the Rectum.*

Laura A——, aged forty-one.

Universal pleural adhesions.

R. Lung.—Old caseous and pigmented deposits at the apex.

L. Lung.—Upper lobe almost entirely consolidated; an irregular cavity of moderate size at the apex; numerous caseous foci around.

CASE 46.—*Granular Fatty Kidney. Pneumonia of Left Lower Lobe.*

Louisa S——, aged twenty-four.

R. Lung.—Extreme apex firm and tough, from old consolidation.

L. Lung.—Apex puckered, and contains a few small concretions. Lower lobe solid, from pneumonia.

CASE 47.—*Sarcoma of the Orbit. Asphyxia during removal, relieved by Laryngotomy. Death from Asthenia.*

George B——, aged sixty.

Lungs.—The apex of each lung contained an old cavity, dried and empty; caseous concretions around. No evidence of any active change.

CASE 48.—*Cancer of Uterus, Vagina, and Bladder.*

Louisa C——, aged thirty-four.

R. Lung.—Apex puckered. On section, several caseous and cretified nodules, varying in size from a pin's head to a hazel-nut; surrounding tissue fibrous.

L. Lung.—Caseous deposits at apex similar to those on opposite side. One small cavity with irregular outline, left after its removal. Old pigmented miliary tubercles around. A few similar caseous and cretaceous deposits in posterior apex of lower lobe.

Remarks.—This case is of interest as showing that arrest is possible after infiltration of the lower lobe has occurred.

CASE 49.—*Epithelioma of the Epiglottis and Base of the Tongue.*

James F——, aged sixty-four.

Bronchial glands enlarged, caseous, and pigmented.

R. Lung.—Cavity, size of large pea, at extreme apex; contents soft and yellow. Two inches below, an irregular cavity the size of a chestnut; surrounding this were numerous yellow nodules. Tissue indurated and pigmented; bronchi thickened and dilated. Numerous miliary and caseous nodules in upper, middle, and lower lobe.

L. Lung.—Irregularly rounded, thin-walled, ragged cavity, size of a small orange, at apex. Numerous small softening caseous areas and miliary granulations throughout upper lobe. Intervening tracts cedematous, and in places fibrous and sclerosed. Numerous racemose groups of nodules in lower lobe.

Remarks.—This case (like No. 14, and those in Series 4) illustrates how an arrested tubercular lesion may again become active. It is included here because the patient died of a non-tubercular disease.

CASE 50.—*Emphysema. Bronchitis. Granular Nephritis (commencing).*

Ann H——, aged forty-nine.

R. Lung.—Very emphysematous. Cavity size of a Tangerine orange, two and a half inches below apex; full of blood, pus, and debris. Smaller cavities and groups of small caseous nodules around.

L. Lung.—Extremely emphysematous.

CASE 51.—*Acute Meningitis (non-Tubercular) following injury. Scalp Wound. Pleuro-pneumonia. Chronic Interstitial Nephritis.*

Robert W——, aged seventy.

R. Lung.—Old caseous deposits at apex.

L. Lung.—Old calcareous nodule in the lower lobe, the size of a hazel-nut.

CASE 52.—*Cancer of Uterus, Vagina, and Bladder.*

Catherine C——, aged fifty-five.

L. Lung.—At the left apex there were some calcareous deposits, and the lung tissue was fibrous. The disease was very old.

CASE 53.—*Epithelioma of Tongue and Cervical Glands after removal of a portion of the former. Endocarditis. Infarction of Kidney. Granular Nephritis.*

Jesse A——, aged fifty-eight.

L. Lung.—Upper lobe partially consolidated; on section, presented several tracts of old pigmented slaty induration, with some more recent tubercular nodules and much fibrosis. In the lower lobe there were numerous old tubercles and a pigmented mass (? blood-clot).

R. Lung.—Groups of pigmented tubercles at the apex.

CASE 54.—*Cirrhosis of Liver. Chronic Peritonitis. Pleural Effusion. Bronchitis. Granular Kidneys.*

John F——, aged fifty-three.

R. Lung.—A few small patches of caseation at the apex.

L. Lung.—The apex on section showed some caseous patches.—(D. W. F.)

CASE 55.—*Cerebral Hæmorrhage. (Right Centrum Ovale.)*

Margaret S——, aged thirty-six.

L. Lung.—Cavity at apex, posteriorly; old pigmented tubercular nodules and fibrosis around.

L. Lung.—Irregular cavity at apex; deeply pigmented granulations around.

CASE 56.—*Epithelioma of the Penis.*

Charles F——, aged fifty-two.

R. Lung.—Cavity at apex, smooth-walled and indurated in upper part; ulcerating below; numerous pigmented fibrous tubercular areas elsewhere.

L. Lung.—Miliary granulations of more recent date, especially in upper lobe, where there were two small cavities.

CASE 57.—*Leukæmia.*

G. W——, aged twenty-six.

“Infiltrating, ill-defined, and vascular new growth” in liver and spleen.

R. Lung.—At apex a small cretified nodule, the size of a pea.

L. Lung.—A similar nodule in apex.—(S. C.)

CASE 58.—*Wound of Scalp. Erysipelas. Renal Atrophy.*

Sarah B——, aged seventy-four.

L. Lung.—The pleura covering the apex was thick and fibrous. The bronchus of the left upper lobe was dilated, and formed numerous small sacculi containing a creamy purulent fluid.

CASE 59.—*Pleuro-pneumonia. Pericarditis.*

Michael M——, aged thirty-eight.

R. Lung.—Upper lobe puckered; on section shows tracts of pigmented fibrous tissue. Middle lobe hepatised; lower lobe, a small area of fibrous change similar to that of apex, elsewhere hepatised.

L. Lung.—Apex puckered and fibrous, tubes dilated. Lower lobe contains a few tracts of fibrous change.—(S. C.)

CASE 60.—*Rodent Ulcer.*

Eliza P——, aged sixty.

R. Lung.—Bronchial glands caseous, forming a mass size of an orange. Apex had broken down, so that the lobe was simply a cavity filled with clotted blood.

L. Lung.—Presented several patches which appeared to be on the point of breaking down.—(J. B. S.)

CASE 61.—*Cancer of Oesophagus. Secondary Nodules in Thyroid and Lymphatic Glands. Pleuritis.*

Joseph B——, aged sixty-two.

R. Lung.—Apex occupied by an old cavity with thick walls, about the size of a chestnut. Some cretified débris in a loculus near it. Old deeply pigmented tubercles with consolidated lung around.

CASE 62.—*Disease of Ankle-joint. Chloroform Narcosis followed by Uncontrollable Vomiting. Dilatation of Stomach.*

Alfred S——, aged thirty-seven.

R. Lung.—Pleura adherent at apex. Apex broke down in

removal, leaving behind part of the walls of a chambered cavity. Apex dense, from fibrous growth and bronchial thickening; emphysematous bullæ and bronchial dilatation around cavity. Pigmented granulations elsewhere.

CASE 63.—*Fracture of Pelvis and Humerus.*

John B——, aged sixty-five.

Lungs.—Emphysematous and œdematous. The pleura at each apex thickened; old tubercular consolidation and dilated tubes beneath.

CASE 64.—*Stricture of Urethra. Incision. Perineal Section. Sloughing of Bladder. Peritonitis.*

John A——, aged seventy-two.

Lungs.—One or two old caseous nodules at each apex; edges emphysematous.

CASE 65.—*Diphtheria. Tracheotomy.*

James J——, aged four and a half.

Firm fibrous adhesions over left pleura.

L. Lung not expanded (congenital).

R. Lung enlarged, crossed the mid-sternal line. In lower lobe a small collection of creamy yellow caseous material, the size of a split pea, surrounded by a rather dense capsule. Bronchial glands enlarged, and studded with small tubercular nodules, some greyish, others caseous and yellow.

CASE 66.—*Cancer of Œsophagus. Gastrostomy.*

August C——, aged forty-two.

R. Lung—Right pleura much thickened, measuring $\frac{3}{8}$ of an inch at base, of cartilaginous density; cretaceous mass in bronchial gland. Large smooth-walled cavity at apex, caseous nodules and pigmented granulations in upper lobe; more recent at posterior apex of lower lobe.

L. Lung.—Cavity size of a walnut at apex; recent granulations elsewhere in lung.

CASE 67.—*Enteric Fever.*

W. F. L——, aged twenty-three.

R. Lung.—Pleura covering apex puckered. Caseous nodules surrounded by pigmented fibrous tubercles at extreme apex.

L. Lung.—Old caseous nodules surrounded by fibrous tubercle at apex.

CASE 68.—*Pleuro-pneumonia. Pericarditis. Chronic Nephritis.*

John B——, aged forty-three.

R. Lung.—Completely consolidated, grey and red hepatisation. Several caseous nodules at apex surrounded by fibrosed tissue; bronchi thickened and dilated. These were the remains of very old disease.

L. Lung.—A few caseous deposits of very long standing at the apex.

CASE 69.—*Cirrhosis of Liver. Ascites. Chronic Peritonitis.*

Lungs.—Edges of lungs emphysematous. At both apices numerous caseous nodules surrounded by fibrous pigmented lung tissue.

CASE 70.—*Poisoning by Carbolic Acid.*

John S——, aged forty.

L. Lung.—Near apex an old smooth-walled cavity, size of a hazel-nut, surrounded by a few pigmented granulations and caseous nodules. Bronchi dilated.

CASE 71.—*Fracture of the Right Radius and two Ribs. Contusion of the Eye. Acute Bronchitis. Pleuro-pneumonia. Delirium Tremens.*

Sarah K——, aged sixty-three.

R. Lung.—Upper lobe crepitant but œdematous. At upper and outer part a caseous nodule surrounded by pigmented granulations.

CASE 72.—*Fall from a Chair. Concussion of Brain (?). No Cerebral Lesion.*

Willie C——, aged three.

R. Lung.—At apex posteriorly three caseous nodules, one opening into a bronchus, which was dilated. Some recent miliary granulations around nodules. Bronchial glands caseous and enlarged.

CASE 73.—*Chronic Interstitial Nephritis. Left Pleuritic Adhesions and Atrophy of Lung. Heart Hypertrophied and Dilated. Sloughing of Vagina.*

Lydia Jane T——, aged sixty-seven.

R. Lung.—Hypertrophied and emphysematous. Apex puckered and fibrous. One caseous nodule at extreme apex; some pigmented tubercles near.

CASE 74.—*Lithotomy.*

Alexander T——, aged sixty-six.

Lungs.—Old fibrous and pigmented deposits in both upper lobes.

CASE 75.—*Cerebral Hamorrhage. Chronic Interstitial Nephritis. Adherent Pericardium.*

George P——, aged fifty-six.

Lungs.—Old fibro-caseous and cretaceous deposits at each of apex, and at posterior apex of each lower lobe.

CASE 76.—*Stricture of Urethra. Cystitis and Sacculation of Bladder. Pyelo-nephritis. Perineal Section.*

James B——, aged sixty-two.

Lungs.—Small, and collapsed fairly. Old pigmented fibrous patches in both lungs, but no evidence of recent active disease.

CASE 77.—*Adherent Pericardium. Cardiac Hypertrophy. Double Tubercular Pleurisy. Atrophy of Left Kidney. Hypertrophy of Right Kidney.*

Edwin S——, aged fifty-six.

R. Lung.—Old adhesions and puckered scars at the apex.

CASE 78.—*Encephaloid Cancer of Mediastinum and Retro-peritoneal Glands.*

Richard P——, aged forty.

Lungs.—There was an old fibrous nodule at the apex of the right lung, and another at the apex of the left.

CASE 79.—*Cancer of Breast. Secondary Cancer of Vertebrae. Paraplegia.*

Frances G——, aged forty-three.

R. Lung.—Apex puckered, scarred, and emphysematous; old

cavity, with dense fibrous and deeply pigmented tissue around; in latter some miliary granulations, all firm and deeply pigmented. Bronchi dilated. Pigmented granulations in lower lobe.

L. Lung.—Similar lesions at apex; no cavity.

CASE 80.—*Fracture of Sixteen Ribs. Scalp Wound. Rupture of Lung and Pleura. Surgical Emphysema. Granular Nephritis. Syphilitic Peri-hepatitis.*

Jane McD——, aged (about) forty.

Lungs.—There were old caseous deposits in the apices.

CASE 81.—*Diabetes. Sub-acute Nephritis. Coma.*

John R——, aged twenty-two.

R. Lung.—The apex contained a number of caseous nodules surrounded by pigmented lung. Similar nodules at the posterior apex of the lower lobe.

CASE 82.—*Aneurysm of Right Common Iliac Artery. Rupture. Granular Kidneys.*

George F. S——, aged sixty-four.

R. Lung.—Apex puckered. Old calcified tubercle with surrounding fibroid degeneration.

L. Lung.—At apex two or three small cavities, largest about size of hazel-nut, with dilated bronchi and much fibroid tissue around.—(J. J. P.)

CASE 83.—*Cancer of Uterus. Peritonitis.*

Martha R——, aged thirty-six.

L. Lung.—General pleural adhesions. Apex consolidated, and contained several tubercular cavities, size of marbles, filled with caseous material. At the lower part of upper lobe there was an area of caseous deposit the size of a small apple.—(W. R. W.)

CASE 84.—*Cancer of Uterus. Pyo-nephrosis R. Hydro-nephrosis L. Nephritic Abscess R., Rupture. Peritonitis.*

Elizabeth T——, aged fifty-one.

Lungs.—Old fibrous adhesions at both apices, latter scarred, sclerosed and black' for a depth of about half an inch; healed tubercle.—(W. R. W.)

CASE 85.—*Stricture of Urethra. Rupture of Urethra and Extravasation of Urine. External Urethrotomy. Catarrhal Pneumonia.*

Charles T——, aged seventy-six.

Lungs.—Old caseous deposits at apices with pigmented granulations, also numerous patches of recent catarrhal pneumonia.

CASE 86.—*(?) Enteric Fever. Enteritis. Ulceration of Rectum (? Mechanical). Sacro-iliac Disease.*

Florence C——, aged twenty-seven.

Lungs.—Two small caseous nodules in the upper lobes of both lungs.

Intestines.—The lesions showed no sign of tubercle

CASE 87.—*Cancer of Breast, L. Recurrence after Removal. Pneumonia. Secondary Cancer of Liver and Pleura.*

Emily L——, aged thirty-seven.

R. Lung.—The middle lobe presented a phthisical cavity the size of a small apple, with shreds running across it; wall ragged old fibrous adhesions at both apices.—(W. R. W.)

CASE 88.—*Cancer of Uterus, Vagina, Rectum and Bladder. Double Hydro-nephrosis and Pyo-salpingitis. Cystitis.*

Selina L——, aged forty-five.

R. Lung.—Old caseous deposits at apex; fibrous changes around; pleura puckered.

CASE 89.—*Emphysema. Bronchitis. Chronic Lobular Pneumonia Recent Pleuritis.*

Richard B——, aged fifty-four.

L. Lung.—Apex anteriorly extremely emphysematous. Portions of old slaty consolidation, almost cartilaginous in density, indiscriminately mixed with the emphysema. Lower lobe dense and airless, with patches of old chronic pneumonia.—(J. J. P.)

Remarks.—From the description it is fair to conclude that the apex lesions were tubercular.

CASE 90.—*Cancer of Esophagus. Gastrostomy. Chronic Nephritis.*

William A——, aged sixty-four.

R. Lung.—Pleura puckered at apex and firmly adherent. Apex

pigmented, fibrous, and contained a number of caseous nodules. There was no active disease at this point. Pigmented fibrous and caseous nodules in lower lobe, some of latter undergoing softening.

L. Lung.—Numerous caseous nodules in upper lobe; firm and old at apex; more recent and softening below.

CASE 91.—*Primary Cancer of Liver. Recent Pleurisy.*

Joseph B——, aged sixty-two.

R. Lung.—Old caseous mass at apex, bronchi dilated, lung tissue fibrous.

L. Lung.—A few old tubercular masses in the upper lobe.—(J. J. P.)

CASE 92.—*Cancer of Œsophagus. Cured Ranula.*

Thomas H——, aged fifty-four.

R. Lung.—Caseous and miliary granulations in upper lobe. A moderate degree of pigmentation, but the changes for the most part were of rather recent date.

L. Lung.—Two small cavities, size of cherries, at apex; near them a caseous nodule. Numerous areas of caseation elsewhere.

CASE 93.—*Epithelioma of Groin (R.). Bronchitis.*

Mary A——, aged sixty-nine.

R. Lung.—Old adhesions over whole pleural surface. An indurated area the size of a florin at the apex.

L. Lung.—Old adhesions over apex, where there was a similar indurated area and depressed scar.—(W. R. W.)

CASE 94.—*Cancer of Breast (R.). Lipoma of Shoulder (R.). Molluscum Fibrosum, thigh (R.). Dermoid Cyst of Ovary (L.), etc. Aneurysmal Dilatation of Aorta.*

Mary L——, aged eighty-five.

Lungs.—General fibrous adhesions, most marked at apices. Both apices the site of a firm scar-like indurated depressed area about the size of a florin, and quarter as thick, as of healed phthisis.—(W. R. W.)

CASE 95.—*Separation of both Sacro-iliac Synchondroses. Fracture of Iliac Bones, of Sacrum, of Five Ribs, etc. Erysipelas.*

Annie W——, aged forty-nine.

R. Lung.—The upper lobe contained several irregular chronic

cavities undergoing contraction ; tissue around contained caseous and pigmented granulations, and was much fibrosed. Large chronic cavity at posterior apex of left lower lobe.

CASE 96.—*Delirium Tremens. Eczema. Tubercular Enteritis. Fatty Degeneration of Liver and Kidneys.*

George F——, aged twenty-nine.

Lungs.—In upper lobes old cavities surrounded by numerous caseous nodules, with much fibroid growth and puckering of the pleura. Small deposit at posterior apex of lower lobe.

CASE 97.—*Cancer of Stomach and Œsophagus. Secondary Infection of Tracheal Glands and Heart Wall.*

William S——, aged sixty-two.

L. Lung.—A large stellate puckered cicatrix at apex, from which an irregular tract of hard, deeply pigmented tissue extended inwards.—(J. J. P.)

CASE 98.—*Intestinal Obstruction from Volvulus of Sigmoid Flexure. Colotomy.*

J. J. L——, aged forty-nine.

L. Lung.—Upper lobe extensively infiltrated, grey in tint ; large areas of caseation. Bronchi dilated. Small racemose nodules in upper part of lower lobe.

CASE 99.—*Pneumonia of Right Upper Lobe. Stricture of Urethra.*

Alfred W——, aged forty-two.

R. Lung.—Grey hepatisation of whole lobe. Near the apex posteriorly was a patch, size of sixpence, deeply pigmented, and containing in its centre a small caseous nodule.

CASE 100.—*Bronchitis. Left Tubercular Pleuritis. Rachitis.*

John T——, aged five.

L. Lung.—Apex much shrunken, contained greyish caseous mass : discrete grey tubercles throughout upper two-thirds of lobe. Triangular area of caseous pneumonia at anterior base of upper lobe.

R. Lung.—Hypertrophied. A few tubercles scattered very sparsely about.—(C. L. H.)

CASE 101.—*Enlarged Prostate. Cystitis. Bronchitis. Diffuse Suppurative Nephritis. Pyelitis.*

Thomas A——, aged seventy-one.

R. Lung.—Old pigmented fibrous granulations at apex and at posterior apex of lower lobe : pleura puckered.

CASE 102.—*Capillary Bronchitis. Granular Nephritis. Cardiac Hypertrophy. Diverticulum of Oesophagus.*

Emma L——, aged fifty-two.

Lungs.—At apices, small cavities, size of a pea, connected by firm fibrous tissue. No evidence of recent tubercle.—(J. J. P.)

CASE 103.—*Ulceration and Perforation of Cæcum, also of Sigmoid Flexure. Pelvic Abscess. Peritonitis. Double Pyelonephritis, etc.*

Louisa S——, aged thirty-six.

R. Lung.—Emphysematous vesicles about apex, just below latter a cavity, size of a pea, containing caseous material. Surrounding tissue pigmented. Caseous and fibrous nodules in lower lobe.

CASE 104.—*Proctitis. Three Recto-vaginal Fistulae. Two Fistulae in Ano. Amyloid Disease of Rectum, Colon, Spleen, Kidneys, etc.*

Ann D——, aged fifty-five.

R. Lung.—A large old tubercular mass in upper lobe : none in lower.

L. Lung.—Pigmented tuberculous mass at apex.

CASE 105.—*Aneurysm of Aorta. Double Sac. Extensive Atheroma. ? Syphilis. Incomplete Rupture of L. Ventricle. Chronic Granular Nephritis.*

Ann M——, aged sixty-two.

R. Lung.—Old caseous deposits at apex ; pigmented granulations around. Caseous mass at posterior apex of lower lobe ; large but recent granulations around this.

L. Lung.—Old deposits at apex. Recent translucent tubercle on pleura.

CASE 106.—*Cerebral Atrophy. Spinal Sclerosis. Cirrhosis of Liver.*

Miriam S——, aged fifty-five.

L. Lung.—Cicatrix in pleura covering apex; indurated and pigmented nodule below. Caseous nodules inside a dilated bronchus, surrounded by some (? tuberculous) granulations.

L. Lung.—Fibrous nodules in pleura.

CASE 107.—*Recurrent Sarcoma of Superior Maxilla. Meningitis.*

Benjamin W——, aged seventy-two.

Lungs.—Old fibrous adhesions over each apex; each also the seat of old scars. In the right apex thick black scar tissue the size of half a walnut.—(W. R. W.)

CASE 108.—*Aortic Disease. Aneurysms of Mitral Valve. Fatty Myocarditis. Splenic and Renal Infarctions.*

Samuel S——, aged fifty.

L. Lung.—Pleura covering upper lobe studded with fine miliary granulations. Caseous nodule at apex; fibrous changes around.

CASE 109.—*Addison's Disease.*

Edward G——, aged (?).

Both supra-renals slightly enlarged, hard and knotty. On section they were cretaceous, and in parts caseous and breaking down.

R. Lung.—A bunch of caseous glands at the root. Apex consolidated, and in parts commencing to soften.

L. Lung.—A small patch of consolidation at apex.

CASE 110.—*Epithelioma of Rectum and Vagina. Littré's Operation for Artificial Anus.*

Maria S——, aged sixty-two.

L. Lung.—Apex emphysematous. Caseous nodules in the upper lobe, about the central portion of the lower margin.

CASE 111.—*Rodent Ulcer of Face.*

William P——, aged sixty-two.

Left half of face completely destroyed.

L. Lung.—Cavity size of a filbert in centre of upper lobe, with hard pigmented walls and purulent contents. Two cavities of

about same size in lower lobe, near root; more recent tubercles around.

R. Lung.—Number of cavities about size of a pea at apex, caseous areas around.—(J. J. P.)

CASE 112.—*Rodent Ulcer of Scalp and Neck. Amyloid Disease.*

Isaac W——, aged sixty-eight.

Lungs.—Old fibrous adhesions over both pleuræ, especially over both apices, which were pigmented and scarred.—(W. R. W.)

CASE 113.—*Fractured Ribs. Pneumonia. Bronchitis. Pericarditis.*

Charles H——, aged fifty-eight.

R. Lung.—A few small cretaceous masses in the apex; some emphysema.

CASE 114.—*Poisoning by Oxalic Acid. Hæmorrhage into Stomach and Duodenum.*

Glenalbon W——, aged fifty-one.

R. Lung.—Apex puckered; subjacent lung dense, fibrous, and contained a few old passive tubercular deposits.

L. Lung.—Appearances exactly similar to right.—(J. J. P.)

CASE 115.—*Stricture of Urethra. Retention of Urine. Supra-pubic Puncture and Drainage. Acute Cystitis and Acute Pyelonephritis (R.).*

George S——, aged seventy-eight.

Lungs.—Old fibrous adhesions over whole of right pleura and left apex. Fibroid thickening of, and cretaceous deposit in, each apex.—(W. R. W.)

CASE 116.—*Acute Lobar Pneumonia, Left Upper Lobe. Old Pleuritis with Carnification of both Lower Lobes. Syphilis of Skin and Liver. Atheroma of Aorta*

Charles J——, aged fifty-four.

L. Lung.—Grey hepatisation of upper lobe; embedded in the upper portions were a few old caseous nodules the size of peas, and one cavity the size of an almond, which communicated freely with a large bronchus, but had no causal connection with the other lesions.—(J. J. P.)

CASE 117.—*Cerebellar Hemorrhage.*

James L——, aged forty-one.

R. Lung.—Enlarged, crossed middle line, emphysematous. Apex puckered, fibrous, contained caseous and cretaceous masses, size of peas.

L. Lung.—Numerous cretaceous masses occupied the upper lobe, and the anterior margin of the lower lobe.—(J. J. P.)

CASE 118.—*Epithelioma of Tongue. Amyloid Disease of Liver. Chronic Cystitis and Pyelo-nephritis. Renal Calculi. Stricture of Urethra. Perineal Abscess.*

Henry R——, aged forty-two.

R. Lung.—Upper lobe contained anfractuous cavities, with smooth fibrous walls; surrounding tissue indurated; bronchi dilated.

L. Lung.—One indurated nodule in lower lobe, around a dilated smooth-walled bronchus.

CASE 119.—*Cerebral Hemorrhage. Atheroma of Cerebral Vessels. Chronic Nephritis. Extensive Cystic Degeneration of Kidneys.*

James S——, aged sixty-three.

L. Lung.—Old caseous nodules in the upper lobe.

CASE 120.—*Lympho-sarcoma of Mediastinum.*

W. H. T——, aged twenty-eight.

L. Lung.—Emphysematous; numerous patches of recent collapse on surface. At the apex is an old fibro-caseous nodule, pigmented, the size of a filbert.—(S. C.)

CASE 121.—*Pyosalpinx. Cystitis. Pyelo-nephritis.*

Anna Maria R——, aged twenty-eight.

R. Lung.—Old cavities at the apex, size of French bean, in direct communication with bronchi, surrounded by fibrous thickening.

CASE 122.—*Cancer of Stomach. Secondary Cancer of Liver.*

Alex. L——, aged forty-nine.

R. Lung.—Old pigmented fibrous changes at apex.

CASE 123.—*Cancer of Tongue. Asthenia. Granular Kidneys.*

George A——, aged fifty-four.

Lungs.—Old fibrous adhesions over the *L. L.* This lung contained numerous small suppurating cavities and patches of softening caseous tubercle. The right also contained a few patches of caseous tubercle.—(W. R. W.)

CASE 124.—*Morbus Cordis. Dilatation of Left Ventricle. Hydrothorax.*

Edward L——, aged fifty-five.

Lungs.—Pleural adhesions. Old caseous and cretaceous deposits at both apices.

CASE 125.—*Cancer of Uterus. Double Hydro-nephrosis. Chronic Peritonitis. Secondary Cancer of Liver and Peritoneum.*

Ellen L——, aged forty-eight.

Lungs.—Old fibrous adhesions over both pleural surfaces. At each apex old cicatricial nodules from cured tubercle.—(W. R. W.)

CASE 126.—*Hemiplegia : no cause discovered. Psammomata. (? Tubercular Cerebral Lesion.)*

Ellen H——, aged twenty-two.

R. Lung.—Apex puckered and emphysematous. Three caseous and calcareous nodules, about the size of peas, embedded in pigmented and fibrosed tissue ; one similar nodule in lower lobe.

CASE 127.—*Cancer of Oesophagus. Gangrenous Cavity at Right Apex, with Pneumonia of nearly the whole Right Upper Lobe. Double Pleuritis.*

William S——, aged fifty-nine.

L. Lung.—Old puckerings with intermingled emphysematous bullæ at extreme apex. Several caseous nodules contained in cavities, with hard well-defined walls. Bronchi dilated.—(J. J. P.)

CASE 128.—*Cancer of Uterus. Acute Peritonitis. Double Hydro-nephrosis and Chronic Nephritis. Gall-stones.*

Beatrice E. S——, aged sixty.

Lungs.—Each presented old scars at apex. Pleural adhesions on the left side.—(W. R. W.)

CASE 129.—*Necrosis of L. Fibula. Suppuration of Ankle-joint. Cystitis. Pyo-nephrosis and Acute Nephritis.*

Jane B——, aged sixty-eight.

Lungs.—Old fibrous adhesions over both pleuræ. Puckered scars and sclerosis at each apex, as of old cured phthisis. Throughout the right lung numerous areas of sclerosed tissue and some small cavities.—(W. R. W.)

CASE 130.—*Cancer of Uterus. Secondary of Lungs. Pyo-nephrosis.*

Hannah M. W——, aged seventy-three.

Lungs.—Old fibrous adhesions over both lungs. Scars of old cured phthisis and cretaceous nodules at each apex.

CASE 131.—*Epithelioma of Vagina, extending to Uterus and Rectum. Secondary Growths in Heart and Liver.*

Rebecca D——, aged forty-four.

Lungs.—At apices old caseous and fibrous lesions and pigmented granulations; similar lesions in both lower lobes.

CASE 132.—*Congenital Morbus Cordis. Incomplete Ventricular Septum. Stenosis of Pulmonary Artery. Endocarditis.*

Eliza P——, aged sixteen.

L. Lung.—A large pigmented fibrous nodule at apex, the remains of old disease. Smooth-walled cavity, the size of a walnut, at outer aspect of upper lobe. Caseous nodule in lower lobe.

R. Lung.—Apex puckered. Caseation, fibrosis and a small cavity beneath.

CASE 133.—*Cirrhosis of Liver. Ascites. Peritonitis.*

Robert S——, aged thirty-eight.

R. Lung.—Old fibrous adhesions over pleuræ. In the lower lobe near the back part a sloughy tubercular cavity the size of a walnut, with surrounding pneumonic consolidation.

CASE 134.—*Epithelioma of Axilla. Acute Pericarditis.*

Charlotte L——, aged seventy-nine.

Lungs.—At the apex of each lung slight scarring and pigmentation.—(W. R. W.)

CASE 135.—*Stricture of Pylorus.*

John H——, aged forty-three.

R. Lung.—Two or three tough cicatrices with puckering at apex, and two old dry caseous nodules.—(W. P.)

CASE 136.—*Syphilitic Disease of Rectum. Ulceration of Sigmoid Flexure. Left Hydrosalpinx.*

Beatty R——, aged thirty-five.

L. Lung.—Extensive caseation of the apex with fibrosis in the neighbourhood of the disease.

CASE 137.—*Cancer of Pancreas.*

Elizabeth M——, aged fifty-five.

L. Lung.—At apex some induration due to cicatrices (old phthisis), with surrounding emphysema.—(W. P.)

CASE 138.—*Pleuro-pneumonia (Left Lower Lobe).*

Joseph H——, aged thirty-five.

L. Lung.—There were old fibrous tubercular nodules at the apex.

CASE 139.—*Cancer of Bladder (Epithelioma). Pyelo-nephritis.*

Lucy G——, aged forty-eight.

R. Lung.—An old cretaceous nodule at the apex.

CASE 140.—*Stricture of Urethra. Cystitis. Pyelo-nephritis. External Urethrotomy.*

John L——, aged forty-five.

Lungs.—Old caseous areas at apices, surrounded by fibrous tubercle, all in a quiescent state. Posterior apices of both lower lobes infiltrated.

CASE 141.—*Recurrent Epithelioma of Glands of Neck (R.), secondary to Epithelioma of Tongue.*

Henry L——, aged seventy-five.

Lungs.—General adhesions over right pleura. Scarring of each apex as from old cured phthisis.—(W. R. W.)

CASE 142.—*Aortic Aneurysm. Ulceration into Trachea. Fatty Liver. Contracted Granular Kidneys.*

Augustus P——, aged forty-eight.

Lungs.—Both lungs emphysematous. At the base of the right upper lobe a small caseous mass the size of a hen's egg; some chronic indurated pigmented glands around.

CASE 143.—*Acute Myelitis. Acute Interstitial Nephritis. Bedsores. Asthenia.*

Emily C——, aged twenty-one.

R. Lung.—In central and posterior part of the lower lobe a hard, well-defined caseous mass about the size of a walnut, and another about the size of a pea at the extreme base.—(For S. C.)

CASE 144.—*Stricture of Urethra. Cystitis. Caries and Fracture of Spine.*

Hugh L——, aged forty-two.

R. Lung.—Some old caseous and cretaceous nodules in apex.

CASE 145.—*Cancer of Uterus. Hydro-nephrosis.*

Jane W——, aged fifty-seven.

Lungs.—A single scar at left apex. At right apex several scars with pigmented and sclerosed areas, showing calcareous nodules the size of small peas.—(W. R. W.)

CASE 146.—*Sarcoma of Sub-maxillary Region. Chronic Interstitial Nephritis.*

Edward S——, aged sixty-four.

Lungs.—Old fibrous adhesions over apices, with scarring and caseous nodules. More recent caseous nodules, varying in size from pins' heads to peas, scattered through both lungs.—(W. R. W.)

CASE 147.—*Aneurysm of Aortic Arch (first part). Adherent Pericardium.*

James P——, aged fifty-three.

L. Lung.—Pleural adhesions over apex, a quarter of an inch thick. Lung fibroid, with one cavity about the size of a walnut towards the centre; caseous tubercle around. Latter also present at apex of lower lobe.—(W. P.)

CASE 148.—*Simple Stricture of Œsophagus. Gastrostomy. Peritonitis.*

William C——, aged fifty-nine.

Lungs.—Old fibrous adhesions over whole of right pleura. Old cicatrices and calcareous nodules in the apex of each lung.—(W. R. W.)

CASE 149.—*Cancer of both Breasts. Disseminated Nodules in the Skin of Front of Chest. Secondary in Liver.*

Hannah H——, aged fifty.

Lungs.—Old fibrous adhesions over each pleura. Both apices scarred, and presenting old caseous nodules; similar lesions also present in other parts of both lungs.—(W. R. W.)

CASE 150.—*Cancer of Superior Maxilla.*

John R——, aged forty-three.

Pleura.—Extensive adhesions at right apex and left base.

L. Lung.—At extreme apex a smooth-walled cavity surrounded by numerous indurated and pigmented caseous nodules. Slaty-grey fibrous areas of consolidation throughout anterior margin of upper lobe; no infiltration of lower lobe. Base contracted and puckered from old pleurisy; bronchi dilated.

R. Lung.—Numerous caseous and pigmented nodules at apex, similar to those above described.

CASE 151.—*Epithelioma of Tongue.*

Michael S——, aged sixty-one.

Lungs.—Extreme emphysema. Old smooth-walled cavity at left apex surrounded by pigmented and caseous tuberculous deposits. At right apex condition very similar, but cavity smaller.

CASE 152.—*Cerebral Hæmorrhage.*

Creighton G——, aged (?)

L. Lung.—A patch of old tubercular disease, with excavation and extensive limiting fibrosis.

CASE 153.—*Cancerous Cyst of Right Ovary. Ovariectomy.*

Matilda B——, aged forty-four.

Pleural adhesions at apices. At the left apex an old smooth-walled cavity, surrounded by pigmented tubercular deposits.

CASE 154.—*Cancer of Tongue and Mouth.*

Bryan S——, aged forty seven.

L. Lung.—At the apex a large area of caseation surrounded by slaty indurated tissue, some apparently tubercular nodules around.

CASE 155.—*Chronic Interstitial Nephritis. Epilepsy.*

Ellen P——, aged twenty-seven.

R. Lung.—Apex puckered and indurated; an old cavity, size of a hazel-nut, with thick, smooth, and fibrous walls, filled with yellowish-green caseous material. Caseous mass, size of a pea, at posterior apex of lower lobe; recent infiltration around.

L. Lung.—Deep puckered cicatrix at apex. Caseous mass, size of a shilling, beneath.—(L. H.)

CASE 156.—*Morbus Cordis.*

Josiah P——, aged sixty-nine.

Lungs emphysematous. Pleura at right apex puckered and thickened; beneath the scar was a small cretaceous patch the size of a bean.

CASE 157.—*Disease of Temporal Bone. Cerebral Abscess. Pyæmia.*

Sarah R——, aged thirty.

There was a "crossed" tubercular deposit—i.e., from the left apex to the right lower lobe, the left lower lobe being free from deposit.

CASE 158.—*Pneumonia. Delirium Tremens.*

Frank D——, aged thirty-three.

Lungs.—Some old caseous deposits at left apex, and a few at the right apex. Recent pneumonia elsewhere.

CASE 159.—*Cancer of Omentum, Peritoneum, and Pleura.*

Charles P——, aged forty-eight.

R. Lung.—Fibrous masses at apex.

L. Lung.—At apex a caseous mass about the size of a hazel-nut; hard, fibrous puckering below.

CASE 160.—*Cancer of Uterus.*

Eliz. N——, aged sixty-three.

R. Lung.—Pleural adhesions at apex : surface puckered ; a hard fibrous nodule beneath.

L. Lung.—Some fibrous nodules at apex.

CASE 161.—*Cancer of Uterus.*

Loveday C——, aged forty.

Old fibrous adhesions over whole of both pleuræ. In each apex numerous small hard nodules, many of them cretaceous, "as of old cured phthisis."—(W. R. W.)

CASE 162.—*Cancer of Rectum. Perforation of Intestine. Peritonitis.*

Ross B——, aged forty-nine.

R. Lung.—At the apex there was an old tubercular deposit, and a similar deposit at the apex of the lower lobe.

CASE 163.—*Chronic Interstitial Nephritis (slight). Epilepsy.*

William F——, aged fifty-nine.

R. Lung.—Apex puckered ; thick bands, and between them emphysematous bullæ. On section numerous dense black fibrous areas, in which were small caseous or cretaceous particles, and a small dry cavity containing some cheesy matter. Elsewhere fibrosed tubercles.

L. Lung.—Pleura thickened. No tubercle.

CASE 164.—*Cancer of Uterus.*

Mary R——, aged forty-four.

L. Lung.—Over apex a few old fibrous adhesions in connection with a few hard knotty nodules, as of old tubercles.—(W. R. W.)

CASE 165.—*Morbus Cordis. Empyema. Morbus Renum.*

Emma W——, aged forty-two.

R. Lung.—The apex presented an irregular anfractuous cavity, which communicated freely with the bronchus. No fluid was found in it, and it was not putrid.—(W. P.)

CASE 166.—*Cancer of Ovary (R.). Secondary of Liver, Peritoneum, etc.*

Eliza N——, aged forty-four.

Lungs.—Old adhesions over each apex, posteriorly, where also there were a few discrete caseous and cretaceous nodules, about the size of peas, as if from old cured tubercular disease.—(W. R. W.)

CASE 167.—*Dilated Heart. Pulmonary Edema. Fatty and Cirrhotic Liver. Indurated Kidneys.*

Francis C——, aged forty-one.

R. Lung.—At extreme apex pleura adherent, thickened (one-eighth inch) and tough. An old contracted cavity in apex; and close by, two old caseous foci about the size of a filbert. No tubercle elsewhere.—(W. P.)

CASE 168.—*Syncope. Vomited Matter in Bronchi. Collapse of L. Lung. Hypertrophy of Heart. Granular Kidneys.*

Thomas B——, aged fifty-seven.

L. Lung.—Pleura adherent and in places one-fourth inch thick, very dense and in some areas calcareous. Lung collapsed and fibroid.

R. Lung.—At apex several cretaceous nodules, varying in size from a pea to a walnut, the result of old cured phthisis.—(W. R. W.)

CASE 169.—*Epithelioma of Hard Palate and adjacent Parts. Excision after preliminary Tracheotomy and Ligature of Common Carotid Artery.*

John H——, aged fifty-seven.

R. Lung.—Old fibrous adhesions over its whole extent. At the apex much scarring and numerous small cretaceous nodules.

CASE 170.—*Recurrent Cancer of L. Breast. Extensive Destruction of Chest Wall after Fell's Paste.*

Martha P——, aged forty-seven.

Lungs.—Old adhesions over the apex of each lung, and a little scarring there, as from old cured phthisis.—(W. R. W.)

CASE 171.—*Intra-capsular Fracture of Neck of Femur (L.).*

Sarah B——, aged seventy-three.

Lungs.—At the apices there were some old chronic fibrous lesions, surrounded by large emphysematous bullæ.

CASE 172.—*Fracture of Skull and four Ribs, etc.*

John P——, aged (?).

Lungs.—Old fibrous adhesions over left lung. Caseous and calcareous nodules at each apex, with scarring of the pleura.—(W. R. W.)

CASE 173.—*Cancer of Stomach.*

William T——, aged forty-four.

Lungs.—Each lung at the apex showed an old tough puckered cicatrix, and on section revealed obsolescent calcified tubercle.—(L. H.)

CASE 174.—*Cancer of Stomach.*

Charles W——, aged forty.

Lungs.—At the apex of each lung there were patches of calcified obsolescent tubercle surrounded by emphysematous bullæ. There was also a calcified nodule at the apex of each lower lobe.—(L. H.)

CASE 175.—*Cancer of Breast.*

Mary A. D——, aged (?).

Lungs.—Each apex was sclerosed and pigmented and contained numerous small calcareous nodules, the result of old cured phthisis.—(W. R. W.)

CASE 176.—*Epithelioma of the Palate.*

Patrick C——, aged forty-nine.

L. Lung.—An old phthisical cavity at the apex, and another at the apex of the lower lobe.

CASE 177.—*Cancer of Uterus.*

Mary A——, aged (?).

L. Lung.—A mass of obsolete tubercle about the centre of the right upper lobe, and another in the lower lobe.

ANALYSIS OF CASES IN SERIES I.

These cases will repay a brief analysis.

Age.—In 171 cases the age is stated, the incidence in the decennial periods being as follows :

| Age. | Cases. | Per Cent. |
|----------------|--------|-----------|
| Under 30 years | 18 | 10.5 |
| 31-40 " | 26 | 15.2 |
| 41-50 " | 43 | 25.1 |
| 51-60 " | 40 | 23.3 |
| Over 60 " | 44 | 25.7 |

The average age was almost exactly fifty years.

In Dr. Martin's cases the age was as follows :

| Age. | Cases. | Per Cent. |
|-------------|--------|-----------|
| 20-30 years | 4 | 9.7 |
| 31-40 " | 4 | 9.7 |
| 41-50 " | 15 | 36.5 |
| 51-60 " | 10 | 24.3 |
| Over 60 " | 8 | 19.4 |

In Dr. Coats' cases of healed tuberculosis the deaths occurred at the following ages :

| Age. | Cases. | Per Cent. |
|-------|--------|-----------|
| 0-29 | 2 | 8.5 |
| 30-39 | 5 | 20.75 |
| 40-49 | 5 | 20.75 |
| 50-59 | 8 | 33.5 |
| 60-69 | 4 | 16.5 |

On comparing the mortality up to the age of thirty years as shown in these tables, with that prevailing generally from phthisis (Reg. Gen. Returns), it appears that, whereas in the latter the maximum rate occurs about the age of thirty,

in the cases of healed tuberculous the smallest mortality is observed up to that age; the maximum occurring between forty and sixty years.

Sex.—It will be seen on reference to the tables (p. 10), that the number of males is so largely in excess that we can hardly be in error in concluding that arrest occurs more often in men than women, more especially as the mean annual mortality from “phthisis” of males and females is practically the same.

Place of Residence.—The large majority of the individuals who appear in this series probably lived in London or its neighbourhood, many of them doubtless amid surroundings of the most unfavourable nature. That arrest may take place under such conditions is a fact abundantly confirmed by one’s clinical experience at the Brompton Hospital.

Site of the Disease.—It appears, perhaps somewhat unexpectedly, but in both tables, that the tubercular process is more often found in a condition of arrest when both lungs have been affected, than with the disease limited to one. As it is contrary to clinical experience for both apices to be simultaneously attacked, and for the lesions to be equally distributed through both upper lobes, it follows that one lung is affected after the other, and probably in many cases after arrest has taken place. There appears to be practically no difference between the two lungs as regards liability to infiltration.

It will be noted that in some of the cases the lower lobe was already affected, showing, as I have pointed out elsewhere, that this often occurs at an early period. The fact that the lower lobe (about its posterior apex) is involved, is therefore no bar to the arrest of the disease.

Stage of the Morbid Process.—In the majority of cases the lesion was fibroid and pigmented, or caseous, or calcareo-caseous, and in only 43 out of the 177 cases is it stated that a cavity was present. In 42 cases of retrograde tubercle, Dr. Martin found calcareo-caseous lesions in 31 cases, and the fibroid and pigmented variety in 11. In my own cases the two forms are so frequently mentioned

together in the descriptions, that I have been unable to separate them. It does not, I think, follow, in the cases in which a cavity is said to have been present, that it was a clinically recognisable cavity, or indeed that any cavity at all existed during the period of activity of the disease. I believe that in many of such cases the appearance of excavation is produced by the growth of a fibrous capsule, which becomes smooth within, around a caseous mass. This is often described as a cavity with caseous (often blackish grey) contents; my own pathological experience gives little support to the view, that a cavity, recognisable as such by physical signs, may become completely obliterated. The occurrence of such a change has been described, and if one is to believe the statements of patients (which by the way it is generally better not to do), some authorities appear to have arrived at such an altitude of diagnosis that they can trace (on paper) the gradual shrinking of a cavity up to its final obliteration. One frequently sees that a thick-walled cavity has both contracted and altered its shape, but I cannot recall having ever observed a cicatrix which appeared to represent what was at one time a clinically recognisable cavity.

Cause of Death.—Tables I. and II. (p. 10, 11), correspond fairly on this point; in both the number of deaths from cancer is large, the proportionate excess in Table I. being due to the existence of a cancer foundation at the Middlesex Hospital.

Cancer and tubercle are very often found in association, although it is rare to find both processes active in the same individual, such an event being perhaps most common in epithelioma of the mouth or tongue.

In some of the cases, the arrest was possibly an instance of the antagonism of morbid processes, of which medicine affords many examples, and recent bacteriological research so fascinating an explanation, the tubercular infiltration having been determined by the appearance of a predominant process. The character of the pulmonary lesions in these cases negatives the view that the tubercular process was

grafted on to the cancerous, although the possibility of such an occurrence cannot be denied. If found to occur, it will probably be where the primary growth is situated in the mouth, pharynx or larynx. Another possible reason for the association of the two diseases is, that it is more common to find in cancerous patients a family history of tuberculosis than of cancer. It is impossible to state how long the arrest of tuberculosis preceded the appearance of the cancerous growth.

EVIDENCE OF THE TUBERCULAR NATURE OF OBSOLETE LESIONS.

We have now to consider what proof there is for the assumption already made, that such lesions as these represent the arrest of a tubercular infiltration.

One important point in the evidence is :

The Site of the Lesions.—It will be noted that in nearly all the cases already recorded, and in those which follow, the apices of the lungs are the parts affected. This corresponds with the habit of the tubercular process, but with that of none other with which I am acquainted. It must also be remembered that the occurrence at the apices of lesions unlike these and not suggesting a tubercular origin is extremely rare.

Absence of any other Adequate Cause.—It will scarcely be contended that any considerable number of these lesions are due to syphilis, and if such a possibility be admitted for a few, the number remaining would be so large that the contention in favour of their tubercular origin, on the ground of the absence of any other adequate cause, would still be valid. That they are not the result of simple inflammation, is proved by the presence, in most of the cases, of tubercles visible to the naked eye, and by the other facts to be subsequently stated.

INFECTIVE PROPERTIES OF THE MORBID PRODUCTS.

So far as caseous material generally is concerned, this property is now universally admitted, and it is unnecessary to dwell upon it. That the caseous masses found at the apices of the lungs, in cases similar to those described, do not differ from those found elsewhere, is shown by their possession in some cases of this infective property and by the fact that they contain tubercle bacilli.

A case which I saw in consultation with Mr. H. R. Fuller, of Curzon Street, and afterwards with Sir Andrew Clark,

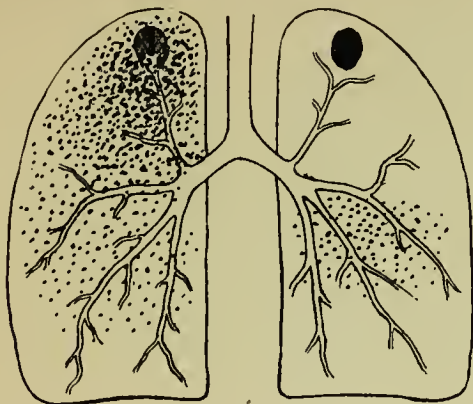


FIG. 2.

affords a striking proof of the infective power of old caseous deposits.

The patient was a gentleman aged 53, who, at the age of 13, had an illness which was said to be "consumption." He recovered and enjoyed good health, with the exception that he had an attack of pleurisy in 1885, whilst in Egypt. He was suddenly seized with hæmoptysis on Feb. 1, 1888, and some days later was found to have crackling *râles* at the left apex. The diagnosis then made was that an old tuberculous lesion at the left apex had broken down, and that infiltration was occurring in the surrounding lung. The temperature continued high and the area over which the

râles were present gradually extended until the greater part of the left lung had become involved. The right lung was subsequently invaded and nothing stayed the progress of the disease, the patient dying on the twenty-eighth day after the attack of hæmoptysis.

The condition present on *post-mortem* examination is represented in the diagram (Fig. 2). At the left apex there was a caseous mass the size of a large olive; this had been firmly encapsuled, but changes in the neighbouring bronchus had apparently caused destruction of the capsule at one point. The caseous mass had undergone softening and about half of it had been discharged; it presented a ragged edge. The bronchus, which led directly into the cavity thus formed, was ulcerated at several points. The left lung was extensively infiltrated with recent miliary tubercle. The right showed similar infiltration, but over a smaller area. A point of great interest in the case was the discovery at the apex of the right lung of a firmly encapsuled caseous mass almost exactly similar to that on the opposite side. Its capsule was intact at all points and no changes were found in the neighbouring tissues. Of the presence of this lesion there were no physical signs during life nor from its size, nature and situation were they to be expected.

PRESENCE OF TUBERCLE BACILLI IN OBSOLETE LESIONS.

The fact that lesions similar to those here described contain tubercle bacilli is an important link in the chain of evidence of their tubercular nature. The bacilli are rarely found in numbers, and are, as a rule, absent altogether from the fibroid lesions, but are nearly always present in the caseous and calcareo-caseous masses. The absence of the bacilli from the fibroid lesions, is, indeed, no argument against their specific nature, as it is in complete accord with the results obtained from the examination of undoubtedly tubercular material which has undergone fibroid transformation.

RESULTS OF INOCULATION EXPERIMENTS.

Dr. Sidney Martin has kindly furnished me with the following results of inoculation experiments performed by him with obsolete caseous material.

| | Cause of Death. | Position of Tubercle. | Tubercle Bacilli. | Inoculation Experiments in Guinea Pigs, subcutaneously with small portion of caseous matter. |
|--------------------------|---|---|---|--|
| Case I. M. æ. 47. | Epithelioma of rectum. Pyæmia. | R. apex: A caseous fibroid nodule size of a pea; small fibroid nodule near, no tubercle elsewhere. | Few tubercle bacilli. | ¹ <i>Guinea-pig</i> , weight, 350 grammes. Wound healed after slight suppuration. Killed in 23 days: no tubercle. ² Weight, 490 grammes. Same as (¹). Killed in 23 days: normal. ³ Weight, 510 grammes. A much larger quantity used for inoculation. No suppuration. Killed in 120 days: no tubercle—quite normal. |
| Case II. M. æ. 58. | Cancer of stomach. Cancerous peritonitis. | L. apex: 4 or 5 calcareo-caseous nodules, small, and surrounded by fibroid tissue; in R. upper lobe are small similar nodules. No tubercle elsewhere. | The caseous core of the nodules contained a few tubercle bacilli. | ¹ Animal, weight, 460 grammes. Caseous core of nodules used for inoculation. No suppuration. Killed in 118 days: no tubercle—normal. |

It will be seen from the above that it is possible for the bacilli contained in caseous material to have lost their infective property. This is probably more often the case when the nodules are, as in the above instances, small and have become partly fibroid and calcareous. In the larger masses, as shown by the case just described, the specific infective power is retained, and destruction of the capsule may be rapidly followed by miliary tuberculosis of the lungs.

ASSOCIATION WITH ACUTE TUBERCULOSIS.

Perhaps the most important evidence of the real character of these changes is the fact, that in cases in which they are present, it is not uncommon to find that death has occurred from acute tuberculosis, possibly, as in the case already referred to, during the progress of softening of an obsolete mass.

The following nineteen cases (Series II.) illustrate this association; in some the infiltration was general, in others it was confined to the lungs.

Series 2.

CASES PRESENTING SIMILAR LESIONS TO THOSE IN SERIES I., IN WHICH DEATH OCCURRED FROM ACUTE TUBERCULOSIS.

CASE 1.—*Acute Tuberculosis. Acute Pleuritis.*

John B. H——, aged forty-four.

R. Lung.—At apex a cavity the size of a hazel-nut with thick walls. Both lungs completely infiltrated with recent miliary granulations.

CASE 2.—*Acute Tuberculosis. Caseous Bronchial Gland communicating with Bronchi and with Œsophagus. Pulmonary Gangrene.*

Rosa B——, aged thirteen.

R. Lung.—Recent miliary tubercle in lower lobe.

L. Lung.—A few scattered miliary granulations in both lobes.

Remarks.—This case illustrates a sequence of events occasionally observed—viz., the tubercular infection of the lungs by a caseous bronchial gland.

CASE 3.—*Old and Recent Tubercular Pleurisy. Paracentesis. Old Peritonitis.*

Henry W——, aged forty-six.

R. Lung.—Caseous nodule at apex size of a hazel-nut, pigmented in centre; smaller caseous nodules near, and in lower lobe; much fibrosis of upper lobe.

L. Lung.—Cavity size of hazel-nut full of soft pigmented caseous material. Dense slaty pigmented areas around.

CASE 4.—*Acute Tubercular Pleurisy (L.). Effusion. Paracentesis.*

George L——, aged fifty-eight.

L. Lung.—Obsolete tubercle, pigmentation and fibrosis at apex.

R. Lung.—Old deposits and bronchiectasia at the apex.

CASE 5.—*Tubercular Meningitis.*

Henry H——, aged twenty-one.

R. Lung.—Apex and upper part of lower lobe, seat of aggregated, tough, pigmented granulations, with a few caseous nodules, surrounded by dense pigmented fibrous capsules.

L. Lung.—Caseous and miliary granulations at apex. No granulations elsewhere in lung or pleura.

CASE 6.—*Acute Pulmonary and Renal Tuberculosis.*

Jonathan K——, aged fifty.

L. Lung.—Pleura at apex puckered and scarred as from contraction of healed cavities. On section through apex fibrous tissue increased. Both lobes contained miliary tubercles of recent formation uniformly scattered through lung.

R. Lung.—Small recent miliary tubercles scattered throughout lung.

CASE 7.—*Acute Tuberculosis of Lungs, Pleura, Peritoneum, Kidneys and Meninges.*

Robert S——, aged forty.

R. Lung.—Old cavity size of hazel-nut just below extreme apex: wall thick, grey, and fibrous, not in communication with a bronchus. Much fibrosis and pigmentation around; the remainder of both lungs completely studded with recent translucent miliary tubercles.

CASE 8.—*Acute Tuberculosis. Endocarditis. Mitral Stenosis.*

John M——, aged thirty-three.

Bronchial glands enlarged and caseous.

Lungs.—Old healed caseous nodules at apices surrounded by cicatricial tissue; the overlying pleura was puckered. The lungs completely infiltrated with recent translucent miliary granulations.

CASE 9.—*Acute Pulmonary and Renal Tuberculosis.*

William L——, aged thirty-three.

R. Lung.—Apex puckered, numerous cicatrices; deeply pigmented caseous and calcareous nodules beneath. Much induration and fibrosis. Recent translucent miliary granulations throughout remaining portions of lung.

L. Lung.—Upper lobe deeply pigmented, and contained caseous granulations. Recent miliary tubercle elsewhere.

CASE 10.—*Acute Tuberculosis (Peritoneum, Spleen, Kidneys, Liver, Intestines).*

Henry S——, aged thirty-one.

L. Lung.—A single cavity size of a chestnut in central portion of upper lobe, surrounded by dense fibrous tissue and recent miliary granulations. Lower lobe studded with recent tubercles.

R. Lung.—Numerous small cavities at apex, recent granulations throughout remainder of lung.

CASE 11.—*Acute Tuberculosis. Brain, Liver, Spleen, etc.*

Joseph P——, aged thirty-two.

L. Lung.—At apex a caseous mass, the size of a bean, undergoing softening.

R. Lung.—An old cavity, the size of a hazel-nut, at apex, with firm walls. Much recent tubercle in both lungs.

CASE 12.—*Tubercular Meningitis.*

William S——, aged forty-one.

Lungs—Upper lobes puckered, scarred and pigmented. A caseous mass, size of a chestnut, at right apex; smaller masses at left; also some fibrous and miliary granulations. Firm caseous nodule at posterior apex of each lower lobe.

CASE 13.—*Acute Tuberculosis. (Lungs, Spleen, Kidneys.) Tubercular Peritonitis*

Elizabeth G——, aged thirty-four.

R. Lung.—A small nodule of old disease at the apex. Both lungs completely infiltrated with recent miliary granulations.

CASE 14.—*Acute Tuberculosis.*

William S——, aged fifty-one.

L. Lung.—Old indurated fibrous granulations, with a small cavity at the outer margin of the left upper lobe.

R. Lung.—Old tubercular nodules in upper lobe; recent granulations throughout all lobes.

CASE 15.—“*Strumous*” *Elbow-joint. Resection.*
Tubercular Meningitis.

Alfred D——, aged twelve.

R. Lung.—Old cicatrices at apex; on section, fibroid and pigmented. One small caseous nodule size of a corn grain. A few recent tubercles.

L. Lung.—Several groups of recent tubercles at apex, none caseating.

CASE 16.—*Tubercular Peritonitis. Perforation (?) of Appendix Cæci. Fæcal Extravasation. Ulceration of Intestines. Fatty Liver.*

William H——, aged twenty-four.

R. Lung.—A few encapsuled caseous nodules in the upper lobe.

L. Lung.—A few caseous nodules and one or two small vomica in upper lobe.

Brain.—Granulations in pia mater in left Sylvian fissure. No choroidal tubercle. —(S. C.)

CASE 17.—*Acute Miliary Tuberculosis of Lungs, Liver, Spleen, and Kidneys. Hemorrhagic Pericarditis. Pleuritis.*

Selina P——, aged eleven.

Lungs—Pleura puckered at apices, where there are cicatrices; beneath these the lung tissue was dense and fibrous, and around were hard caseous masses. Both lungs studded throughout with recent miliary tubercles.

CASE 18.—*Acute and Chronic Tuberculosis. Ischio-rectal Abscess. Tuberculosis of Liver, Prostate, and Testis.*

George B——, aged thirty-nine.

Lungs.—Marked fibrosis; extensive pigmentation; numerous

old fibroid tubercles, but no old caseous deposits. Both lungs completely infiltrated with recent tubercle.

CASE 19.—*Acute Tuberculosis. Tubercular Meningitis.*

Lucy N——, aged three years.

R. Lung.—A caseous nodule at the apex, and also at the apex of the lower lobe. A few recent miliary granulations in lungs.

Cases presenting similar lesions are sometimes met with, in which death occurs from a non-pulmonary tubercular disease other than acute tuberculosis, such, for example, as laryngeal stenosis secondary to tubercular ulceration, caries of the lumbar spine, suppuration of caseous glands, and serofulous nephritis.

The following six cases illustrating this association are taken from the same source. (Series III., see over.)

Series 3.

CASES PRESENTING LESIONS SIMILAR TO THOSE IN SERIES I., IN WHICH DEATH OCCURRED FROM A NON-PULMONARY TUBERCULAR DISEASE (EXCLUDING ACUTE TUBERCULOSIS).

CASE 1.—*Tubercular Ulceration of Larynx. Stenosis. Tracheotomy.*

Maria A——, aged fifty.

Lungs.—Both upper lobes contracted, fibrosed, studded with caseous and calcareous remains of old disease.

CASE 2.—*Caries of Lumbar Vertebra. Double Psoas Abscess, the right opening into the Hip Joint. Thrombosis of Veins of Pelvis.*

Edward K——, aged twenty-six.

Lungs.—There were some old caseous deposits at both apices.

CASE 3.—*Suppuration of Caseous Inguinal and Femoral Glands. Incision. Erysipelas. Acute Pleurisy. Pericarditis. Recent Tubercle in Spleen.*

Samuel S——, aged twenty-five.

R. Lung.—Old caseous and cretaceous nodules with fibrosis at apex. Rounded nodule of cartilaginous density at posterior apex of lower lobe.

Bronchial glands enlarged, caseous and calcareous.

CASE 4.—*Suppuration and Caries of Intercentral Lumbo-sacral Joint. Presacral and Double Psoas Abscess. Acute Peritonitis. Amyloid Spleen.*

William L——, aged twenty-eight.

Lungs.—An old caseous deposit at the left apex. Emphysema at margin.—(W. R. W.)

CASE 5.—*Tubercular Nephritis (Scrofulous Kidney). Sinuses in Loin. Fistulous communication with Stomach.*

William R——, aged twenty-six.

R. Lung.—A puckered cicatrix at apex, and beneath it a fibrosed area containing within it a caseous nodule the size of a large olive. No other pulmonary lesions.

CASE 6.—*Disease of Lumbar Vertebrae. Double Psoas Abscess.*

Ann G——, aged fifty-nine.

R. Lung.—Pleura adherent. A hard patch, about the size of a walnut, near apex, and above this a small cavity, the size of a pea, filled with caseous material.—(J. B. S.)

Another link connecting obsolete lesions with “Phthisis Pulmonalis” is the fact that, in many of the cases so described, appearances are met with on *post-mortem* examination which admit of no other interpretation than that the morbid process has at some time undergone arrest, these lesions again being similar to those already described.

It would be possible to extract from the reports of most of the cases of “Chronic Phthisis” some evidence of the disease having shown periods of quiescence or arrest; but I have been careful to select only such cases as presented these appearances in a marked degree. (Series IV., see over.)

Series 4.

CASES HEADED "PHTHISIS" OR "CHRONIC PHTHISIS," IN REPORTS, WHICH SHOW CLEAR EVIDENCE OF A PERIOD OF ARREST, THE LESIONS BEING IN MOST CASES SIMILAR TO THOSE IN SERIES I.

CASE 1.—*Phthisis. Empyema. Amyloid Degeneration of Liver and Spleen.*

Fredk. C——, aged thirty-eight.

Encysted empyema at base of right pleura, containing ten ounces of thick creamy pus.

R. Lung.—Right upper and middle lobes of a dense fibrous consistence. A cavity at apex, size of a large chestnut, empty and with thickened walls. Large grey or pigmented tubercles around cavity and elsewhere in lung.

L. Lung.—A small cavity at apex. Peri-bronchial thickening in upper lobe.

Remarks.—This case illustrates the slow advance of pulmonary tuberculosis after arrest, the patient dying from the disease. Had life been more prolonged the evidences of the transition would probably have been destroyed.

CASE 2.—*Phthisis. Tubercular Ulceration of Intestines. Peritonitis.*

Louisa R——, aged twenty-eight.

L. Lung.—Apex puckered and irregular, from consolidation in deeper parts and distension of surface vesicles. Caseous areas throughout upper lobe, and in upper two-thirds of lower lobe.

R. Lung.—Considerable fibroid thickening of lateral and interlobar pleura. Fibrous tissue much increased. Extensive excavation and caseation.

CASE 3.—*Phthisis. Pleurisy. Morbus Renum.*

Thomas D——, aged thirty-six.

R. Lung.—A small cavity at apex and several old cretaceous nodules.

L. Lung.—Small cretified mass near entrance of main bronchus (not in bronchial gland). Apex contained cavity size of a hazelnut, elsewhere quite solid and fibrous. Miliary granulations throughout rest of the lung, which was much engorged.

CASE 4.—*Chronic Phthisis. Pleurisy.*

Alexander H——, aged sixty.

Pleura at left apex of cartilaginous density.

R. Lung.—Extensive excavation; intervening tracts, fibrous, slaty, and deeply pigmented. More recent granulations in lower lobe.

L. Lung.—A large old cavity at apex with fibrous walls surrounded by indurated tissue containing pigmented granulations.

CASE 5.—*Chronic Phthisis. Diverticulum of Ileum.*

Jane Maria C——, aged fifty-three.

L. Lung.—Upper lobe consolidated throughout, filled with pigmented granulations of very old date. Cavity size of a walnut posteriorly, walls indurated and smooth.

Numerous peri-bronchial granulations in lower lobe.

R. Lung.—Pleura deeply cicatrised, surface lobules emphysematous. Lobe indurated, slaty and fibrosed; a few small softening areas.

CASE 6.—*Chronic Phthisis. Syphilis. Fibrous Testes.*

Wm. Q——, aged twenty-eight.

A bronchial gland at bifurcation of trachea had undergone softening and discharged its contents, through a pinhole opening, into the air passage.

R. Lung.—Apex scarred, puckered, and covered with emphysematous bullae. Extensive fibrosis; contracted cavity with dense fibrous walls. Numerous pigmented fibrous nodules in all lobes, diminishing in number towards base.

L. Lung.—Appearances very similar.

Remarks.—But for the accident of the bronchial gland opening into the trachea, this would probably have been a case of very prolonged duration. Arrest was complete.

CASE 7.—*Chronic Phthisis. Acute Pulmonary Tuberculosis.*

John G.—, aged thirty-seven.

R. Lung.—At apex an old smooth-walled cavity size of a walnut, surrounded by extensive area of tissue infiltrated with recent granulations. Similar lesions at apex of lower lobe.

L. Lung.—A small cavity at apex surrounded by pigmented granulations, with abundant recent tubercles around, and also in lower lobe.

CASE 8.—*Chronic Phthisis.*

Henry O.—, aged fifty-six.

R. Lung.—Extremely retracted. Pleura enormously thickened, of cartilaginous density. An old retracted cavity at apex, surrounded by dense pigmented fibrosed tubercle. "Gelatinous pneumonia" elsewhere.

L. Lung.—A small cavity surrounded by much peri-bronchial thickening and fibrosis. Extensive areas of recent pneumonia in lower lobe.

CASE 9.—*Chronic Phthisis.*

Clement F.—, aged forty-five.

Right pleura enormously thickened, measuring nearly one inch in depth, partly oedematous and in part fibrous; of cartilaginous consistence in some places.

R. Lung.—At apex old cavities with caseous contents, much contracted and surrounded by indurated lung and pigmented fibrous tubercle, the latter spreading at the margins. Old cavity in lower lobe.

L. Lung contained numerous fibrous tubercles.

CASE 10.—*Chronic Phthisis. Acute Tuberculosis.*

Jeremiah O'N.—, aged thirty-seven.

Firm fibrous pleural adhesions.

R. Lung.—Apex pigmented, infiltrated with old tubercular deposits and fibrous growth. Bronchi dilated, walls thickened. Several small cavities filled with caseous material. Fine recent miliary tubercle throughout rest of lung.

L. Lung.—Old cavity at apex and at apex of lower lobe ; recent granulations elsewhere.

CASE 11.—*Tubercular Ulceration of Larynx. Tracheotomy.
Old and Recent Pulmonary Tuberculosis.*

Samuel S——, aged forty-nine.

Lungs.—Fibrous adhesions over both lungs. At left apex caseous and cretaceous deposits, with scarring, the result of cured phthisis. Similar condition at apex of lower lobe. Recent caseous tubercle in right lower lobe.—(W. R. W.)

CASE 12.—*Chronic Phthisis. Amyloid Disease.*

Mabel H——, aged thirty-nine.

R. Lung.—Extremely shrunk ; upper lobe extended two and a quarter inches over median line at level of second rib.

L. Lung.—Complete destruction of lung tissue. Fibrous bands around vessels forming septa between cavernous spaces, the contracted remains of larger cavities.

CASE 13.—*Chronic Phthisis. Hæmoptysis.*

John L——, aged seventy-eight.

R. Lung.—A small cavity of old date at apex, contents dry and caseous. Tracts of consolidation with peri-bronchial granulations around. Small cavities of more recent date along anterior margin of upper lobe.

L. Lung.—Pleura much thickened and of cartilaginous density. Large cavity with thickened walls in upper lobe. Wedge-shaped tract of consolidation, pigmented and showing numerous granulations in lower lobe.

Remarks.—The disease had commenced at the right apex, and had become arrested. The left apex and right upper lobe had been subsequently attacked. Death occurred suddenly from hæmoptysis. The patient's advanced age is noteworthy.

CASE 14.—*Phthisis. Cirrhosis of Liver. Mitral Disease.
Death from Hæmoptysis.*

George A——, aged thirty-five.

Lungs.—Very emphysematous, especially the lower lobes, and right middle lobe.

Old cavities in apices with smooth indurated walls ; extensive fibrosis around and old pigmented tubercle. Recent granulations elsewhere.

CASE 15.—*Chronic Phthisis. Rupture of Pulmonary Aneurysm. Hæmoptysis. Localised Empyema. Cirrhosis of Liver. Chronic Nephritis.*

William W——, aged fifty-four.

R. Lung.—Some scattered tubercles and one small cavity at apex.

L. Lung.—Smooth-walled cavity, two inches below apex; small pulmonary aneurysm in wall, ruptured.

CASE 16.—*Chronic Phthisis. Rupture of Pulmonary Aneurysm. Hæmoptysis. (Brought in Dead.)*

Charles M——, aged (?).

L. Lung.—At the apex there were several old and contracted cavities surrounded by pigmented tubercles. Upon a branch of the pulmonary artery running along the wall of one cavity was a ruptured aneurysm the size of a hazel-nut. A smaller cavity in the lower lobe.

R. Lung.—The apex contained some pigmented fibrous tubercles having a racemose arrangement.

CASE 17.—*Chronic Phthisis. Empyema.*

Anthony R——, aged thirty-four.

L. Lung.—Old caseous and cretaceous nodules at apex, also an irregular anfractuous cavity of rather recent formation, with spreading margins. Recent tubercle in the lower lobe.

R. Lung.—Empyema, secondary to recent tubercular pleurisy; smooth-walled cavity in upper lobe the size of a chestnut. Pigmented tubercle around.

Another point in the evidence is that in almost all the completely recorded cases of “Cured Phthisis”—*i.e.*, cases recognised as such during life, observed for many years, fatal from some non-tubercular affection, and submitted to *post-mortem* examination, the lesions found in the lungs correspond in all respects with those here describe

The following abstract of the notes of a case occurring in the practice of the late Dr. C. J. B. Williams,* and examined *post-mortem* by Sir William Jenner, may be cited as an example :—

The patient, a brewer's clerk, was first seen in September 1847. Eighteen months previously he had had syphilis, for which he had taken mercury for three months. Ten months later, he had an eruption on the skin, followed by cough, purulent expectoration, night sweats, emaciation, muscular weakness, and dyspnoea.

Physical Signs.—Marked dulness below left clavicle, extending to mammary region, gurgling and crepitation around, loud tubular sounds internal to and above the right scapula.

May 1848.—Quite recovered flesh and strength, still dulness in upper left chest, with dry cavernous sounds above and below clavicle, but no crepitation; vesicular sound faintly heard in lower chest, sounds less tubular in right lung.

September 1850.—Quite well and taking active exercise. Dulness much diminishing, some tubular sounds in upper left chest, front and back. No cavernous sounds, but breathing harsh.

December 1856.—Died after an illness of ten days' duration from peritonitis, secondary to perforation of tubercular ulcers of the ileum. Pleural adhesions over both apices, especially the left.

R. Aper.—Cretaceous matter in tubercles varying in size from a pin's head to a pea.

L. Aper.—Large cretaceous mass filling an ancient cavity.

The case of Sir Astley Cooper may also be quoted in illustration of this fact. He left directions that his body was to be examined after death with particular regard to certain points, one of which was "some suspected indications of phthisis in his youth." He is believed to have had an attack of hæmoptysis for which he bled himself. The result was that,† "at the superior and posterior part of the right lung was a small depressed and somewhat contracted surface about the size of a sixpence, a section of which exposed a calcareous mass very uneven upon its surface, and

* "Pulmonary Consumption," p. 304, Case 87.

† Guy's Hospital Reports, Series I, vol. vi. p. 230.

about equal to the size of a small pea. It was placed about three lines distant from the pleura."

It would not be difficult to multiply such examples, as many similar cases are reported; these have been selected as being well known and the record of them free from any suspicion of bias.

For the foregoing reasons, I am of opinion that lesions such as have been here described indicate the arrest of a tuberculous process.

FREQUENCY OF ARREST.

It may possibly appear to some that the pathological experience here related represents the arrest of pulmonary tuberculosis as an event of more frequent occurrence than their own clinical observations would support. Indeed, most writers on the subject of "Phthisis," refer to the few examples of complete cure which they have observed. How is this apparent discrepancy to be explained? One important point to be remembered is, that their conception of the disease is clinical rather than pathological. Most of the cases when first recognised are fairly advanced, whilst those diagnosed as "catarrh of the apex," "congestion of the apex," "pneumonia of the apex," nearly all of which are really tuberculous, but which, when they recover, are concluded not to be so, and also those of hæmoptysis, in which the blood is said to have come from the throat or elsewhere, merely because there are no physical signs of disease discoverable in the lungs, are altogether left out of reckoning. These really constitute the greater number of such cases as are represented in Series I.

According to a recent writer, "The explanation lies in the fact that these cases of spontaneous cure of tubercle have never been cases of phthisis."

Now, if it be admitted that "phthisis" is essentially pulmonary tuberculosis, it appears, in my judgment, to be wholly unscientific to apply one name to the early manifestations of the process, and another to the later, and to do so mainly on the ground that the more advanced the disease the less often is it observed to undergo arrest.

It will not be denied that a patient, who has had but a single attack of gouty arthritis, is more likely to overcome his malady than one whose every joint is crippled; but it has not yet been suggested that the first attack is any the less gout, or that two names are required for the disease. We shall, in my opinion, have a more accurate knowledge of the tubercular process as affecting the lungs when we have learned to recognise the frequency with which it is arrested, and have adopted a nomenclature based on pathological facts rather than incomplete clinical observations.

PROCESS OF ARREST.

The pathological processes by which the arrest of tubercular disease within the lung is effected, although various, are for the most part essentially similar to that which nature employs to separate living tissues from dead, and to isolate foreign bodies.

(1.) By the formation of a barrier of inflammatory tissue at the margin of the diseased area, the progressive spread of the disease is checked, and if the increased resisting power of the individual, which such a change implies, can be long enough maintained, a firm fibrous capsule will be formed, around a caseous mass for example, and arrest will be complete and may possibly be permanent. Such a condition, however, implies possibilities of future danger, as the disease, although encapsuled, is not eliminated, and under various unfavourable circumstances the capsule may break down, and bacilli, which such caseous masses almost invariably contain, gaining access to the vessels, or being inhaled, an acute pulmonary tuberculosis may follow.

(2.) Or again the reactive force of the tissues may not be able to assert itself until the disease products have softened and been eliminated, or expectorated as a calcareous mass, the only modes of arrest known to Laennec. In such cases the fibrous barrier appears in the form of the thickened cavity wall.

In some rare cases a cretified mass may be enucleated and discharged with its surrounding fibrous capsule, and

portions of lung tissue. A specimen in my possession illustrates such an occurrence; it was expectorated by a patient under treatment by the injection of tuberculine. The calcareous mass came away first and shortly afterwards the pigmented fibrous capsule which surrounds it. At the time the specimen was thought to be unique, but another of the same kind, only rather smaller, has been shown to me by Dr. Delépine, who has met with two other cases of a like nature.

(3.) The fibroid transformation of tubercle is perhaps the most important means of arrest. In this process the grey granulations are converted into indurated and pigmented nodules, a condition in which they may remain unchanged the rest of the patient's life. This form of arrest is also the most favourable, owing to the permanence of the change and to the absence of bacilli from the lesions, a fact which would appear to indicate that the organisms are destroyed in the process; thus the risks of subsequent softening and generalisation are avoided.

CONDITIONS OF ARREST.

What it was in the cases related that turned the scale in favour of the patient cannot be stated. The reports are pathological, not clinical, but it is improbable that the medical histories would have repaid an examination. In the great majority there would certainly have been nothing to suggest the presence of a tubercular lesion of the lungs. The patients belonged to a class which does not as a rule regard slight ailments, and is obliged to work so long as strength holds out.

The affection whilst in an early stage may have been arrested by some intercurrent disease, an example of the antagonism of certain morbid processes. Attacks of small-pox, of erysipelas, of acute rheumatism, and of other diseases are all credited with having arrested more or less advanced pulmonary tuberculosis. It may be that in some cases the resisting power of the individual was lowered by unfavourable surroundings, so that a condition of the tissues

was established which allowed the bacillus to obtain a lodgment, and that this was followed by an increase of vitality which prevented further extension of the morbid process and shut off the diseased products from the organism. In some cases the increase in vitality appears to come too late to arrest the local lesion, but early enough to prevent the generalisation of the disease. In such cases a whole lung may very slowly undergo destruction whilst compensatory changes in its fellow provide for the respiratory needs of the body, death occurring only after many years and then possibly from some other affection.

I fear that it is not to remedies which effect the elimination of tubercular deposits that we must look forward with hope in our battle with pulmonary tuberculosis, but rather to such as increase the resisting power of the individual and enable his tissues to stop the progress of the disease. This they are ever striving to do, even when the destructive process is most acute, and it is only necessary that the local or constitutional conditions should turn in their favour for them to commence the construction of the fibrous wall which will turn back the invader.

In considering the probability of arrest occurring in any given case, that is, in estimating the resisting power of the individual, many factors have to be taken into consideration. On reference to Series IV. it will be noted that a cavity was present in nearly all the cases. But it would appear that the extent of lung affected is of greater importance than the presence of a cavity, although widespread infiltration is naturally often associated with excavation about the site of the primary lesion. Arrest may be hoped for in cases of fibroid tuberculosis with a larger area of infiltration than in any other form of the disease. If, however, a cavity can be recognised clinically the probabilities are that, should arrest occur, there will be at some later period an extension of the tubercular process, and that death will result from a tubercular lesion.

But to this rule, many cases are exceptions; many recognised and probably many which escape observation. I saw lately a lady aged over 60 who was complaining of

slight bronchial catarrh, and on examination of the chest discovered obvious signs of a cavity at the left apex; this was proved with almost absolute certainty from the patient's history to have existed for 47 years. Cases similar to the above have been recorded by many observers.

The relation between the presence of bacilli in the sputa and arrest of the disease is one of great interest. So long as they continue therein, the lesion cannot have either undergone fibrosis or become encapsuled; and it is only in the fibrous barrier that safety lies. But their presence does not, in my opinion, necessarily imply that the area of infiltration is extending, and it is certainly compatible with the complete absence of symptoms and signs, and the enjoyment of what is often described as perfect health. I am acquainted with cases in which they have been found in the sputa whenever looked for since the discovery of the micro-organism, notwithstanding that the patients have generally enjoyed good health; they may, in fact, be the only thing of which complaint is made.

It is very unwise to allow a patient to concentrate his attention on the bacillus, as such a condition of mind may mean the destruction of hope, a factor of the utmost importance in the treatment of the disease.

There can be no doubt that lesions such as have been referred to, are formed during a period of ill-health, and it is quite possible that when the process is active they may be recognisable on physical examination.

Pulmonary tuberculosis, in this early stage, has been frequently overlooked in the past, but now that in the examination of the sputa we possess a means of detecting the presence of certain stages of the morbid process, it is possible to make a diagnosis at an earlier period, and for this reason it becomes of great importance that we should be aware how frequently the process is arrested.

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